AstroPlanner

V2.2

User Manual

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Star Forming Region LH 95 in LMC. Credit: NASA, ESA & STScI/AURA

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1 Introduction 1
1.1 What AstroPlanner does 1
1.2 What AstroPlanner doesn't do 1

2 Installation 2
2.1 Hardware and operating system requirements 2
2.2 Telescope mount compatibility 2
2.3 Macintosh application installation 3
2.4 Windows application installation 3
2.5 Installing catalogues 4

3 Unregistered users 6
3.1 Limitations 6
3.2 How to register 6

4 First-time users 7
4.1 V1 enquiry 7
4.2 Licence 7
4.3 Setup Wizard 9

5 Upgrading from the previous version 16
5.1 First time after upgrade 16
5.2 Opening V1.x plan documents 17
5.3 Special issues for Mac OS X Lion users 18

6 Quick start tutorial 22
6.1 Creating a new plan 22
6.2 Setting up resources 30
6.3 Visualising objects 33
6.4 Using a computerised telescope 38
6.5 Making observations and logging them 40
6.6 Printing reports 41

7 How to get help 44
7.1 User Manual 44
7.2 User group 44
7.3 Vendor 44
7.4 FAQ 44
7.5 Blog 44

8 Anatomy of AstroPlanner 45
8.1 Plans 45
8.2 Objects 45
8.3 Observations 45
8.4 Sessions 45
8.5 Resources 46
8.6 Catalogues 46
8.7 Scripts 46

9 Common user-interface elements 47

9.1 Text fields 47
9.2 Lists 50
9.3 Resource choosers 52
9.4 Hierarchical options lists 52
9.5 Date/time selectors 54

10 Setting up your resources 56
10.1 Using the Setup wizard 56
10.2 Manual setup using Resources window 56

11 Constructing an observing plan 81
11.1 Manual construction 81
11.2 User-contributed plans 90
11.3 Plan Creation Wizard 90
11.4 Editing objects 94
11.5 Importing objects from other sources 95

12 Plan document window 96
12.1 Common information and settings 96
12.2 Objects tab 100
12.3 Observations tab 119
12.4 Field of View tab 128
12.5 Sky tab 150
12.6 Object list functions 164
12.7 Field of View functions 182

13 Observations 185
13.1 Logging observations 185
13.2 Observation database 186

14 Controlling a computerised telescope 199
14.1 Choosing a mount type 199
14.2 Configuration 201
14.3 ASCOM configuration 205
14.4 Connecting & disconnecting 207
14.5 Slewing 207
14.6 Syncing 207
14.7 Tracking 208
14.8 Control palette 208
14.9 High-precision slewing 212
14.10 Spiral Scan 214
14.11 Emulated mounts 215
14.12 Other features 215
14.13 Vendor-specific features 219

15 Telescope alignment 223
15.1 Iterative polar alignment 223
15.2 Polar drift alignment 224
15.3 Polar alignment scope tool 226
15.4 1-star polar alignment 226

16 Printing 228
16.1 Sky and Field of View Charts 228
16.2 Objects 228
16.3 Objects & observations 232
16.4 Observing forms 234
16.5 Finder charts 237
16.6 Observing sessions & observations 246

17 Journal 256

18 Downloading and using sky images 258
18.1 Downloading 260
18.2 Object list 263
18.3 Field of View chart 266
18.4 Images window 267
18.5 Image Manager 269

19 Highlighting & associating list objects 275
19.1 Highlighting objects 275
19.2 Associating objects 279

20 User-defined fields 280
20.1 Field values vs. field definitions 280
20.2 Field types 280
20.3 Creating and editing a user-defined field 281
20.4 Deleting a user-defined field & values 288
20.5 Object list user-defined fields 288

21 Preferences 289
21.1 General preferences 289
21.2 Printing preferences 292
21.3 Web preferences 294
21.4 External applications preferences 295
21.5 Object list preferences 296
21.6 Field of View chart preferences 303
21.7 Sky chart preferences 309
21.8 Catalogue preferences 310
21.9 Observation preferences 312
21.10 Image preferences 316
21.11 Scripting preferences 320
21.12 Other preferences 323

22 Communicating with other applications 325
22.1 Importing & exporting data 325
22.2 Direct control 325

23 User-contributed observing plans 326
23.1 Downloading plans 326
23.2 Uploading a plan 327
23.3 Deleting a plan 328

24 Managing catalogues 329
24.1 Using the Setup Wizard 329
24.2 Installing, updating and removing catalogues 330
24.3 Catalogue settings and coverage 332
24.4 Catalogue Types & IDs 334
24.5 Plan Creation Wizard catalogues 335
24.6 Displaying catalogue contents 336
24.7 Catalogue annotations 338

25 Comets & Minor Planets 342
25.1 Downloading comet elements 342
25.2 Downloading minor planet elements 344
25.3 Quick insertion of a comet or minor planet 348
25.4 Creating a comet or minor planet object manually 349
25.5 Updating elements 350

26 Double Stars 351
26.1 Double star orbits 351

27 Import and Export 353
27.1 Import 353
27.2 Export 362
27.3 Scripted solutions 373

28 Scripting 374
28.1 Editing and managing scripts 374
28.2 Downloading a user-contributed script 377
28.3 Deleting user-contributed scripts 379
28.4 Running scripts 380
28.5 Using the Framework Reference 380
28.6 Script requirements 382
28.7 Uploading a user-contributed script 383
28.8 Event scripts 384
28.9 Printing scripts 385
28.10 User-defined field scripts 385
28.11 Telescope mount scripts 386

29 Troubleshooting 388
29.1 Getting help 388
29.2 Reporting bugs 388
29.3 Feature requests 390
29.4 Built-in tools 391

30 Glossary 395

31 Revision Notes 402
31.1 V2.0.1 402
31.2 V2.1 403
31.3 V2.2 406

1 Introduction

Software applications for astronomy on the Macintosh are not nearly as abundant as applications on other platforms. Although there are several planetarium-style applications (Voyager, TheSky, Starry Night, Equinox, etc.) and a few others for telescope control (ScopeDriver), CCD camera operation (iCCD, Equinox, CCDSoft?) and a few minor utilities, there are some serious gaps. One of these is astronomical visual observation planning and logging. AstroPlanner attempts to fill this particular gap.

Although originally developed on and for the Macintosh, a Windows version is available which is functionally identical to the Macintosh version. The examples and descriptions in this manual are illustrated with screen shots from the Macintosh OS X version, but the Windows version behaves identically (except where noted).

1.1 What AstroPlanner does

AstroPlanner is a stand-alone application that allows the user to plan and execute an observing session. The user can enter objects to be viewed manually, import them from text files, look them up in several supplied catalogues, or use observing plans previously created by others. These objects can be both deep-sky and solar system objects (planets, sun, moon, asteroids, comets, etc.).

Once a list of objects has been created, they can be observed and log entries recorded for each of them. The application will also control a wide range of computerised Go To telescopes, in order to slew to selected objects. Several Digital Setting Circle (DSC) systems are also supported. Telescope control is optional, so AstroPlanner can be used to great effect even if you don’t have a computerised telescope mount.

The application computes the visibility of the objects for the current observing session, shows the sky for that time and can show the field-of-view for the current object as if it was being viewed through a virtual eyepiece, or the sensor of an imager.

Additionally, if you have a network connection, you can download high-resolution photographs of any part of the sky from the Digital Sky Survey (DSS and SDSS).

1.2 What AstroPlanner doesn’t do

AstroPlanner is not a full-blown planetarium application. It will not produce detailed sky maps or do the kinds of things an application such as Starry Night, Voyager or TheSky will do. It will also not do other specialised stuff like controlling CCD cameras or autoguiders, or astronomical image processing.

It is also not a "one button does it all" application, but rather an intricate set of tools that gives you full control over your observation planning. It's not difficult to learn to use the application in its basic form. If you run through the quick start tutorial (Chapter 6 on page 22) you'll get a good feel for the basics. Using the application to its full extent does have a learning curve, but you can assimilate new skills as and when you need them.

You don't need to read this entire manual. We recommend you read through the first dozen chapters. The rest is reference material which you can use when you need to. If you are already familiar with previous versions of AstroPlanner, you might not need to crack the manual at all.

Feel free to experiment!

2 Installation

This chapter runs through the process of installing AstroPlanner V2 on your computer (whether you are a first-time user or upgrading from an older version).

If you are upgrading from AstroPlanner V1.x you should be aware that the installations are independent, so that you can run both V1 and V2 together without them interfering with each other.

2.1 Hardware and operating system requirements

AstroPlanner is a 32-bit application. It runs fine (or should run fine) on both 32- and 64-bit operating systems.

For both platforms a screen with an *absolute minimum size* (width and height) of 1024 x 600 pixels is required. If you are connecting to a telescope, you'll also need a built-in serial port, an USB-to-Serial converter (the Keyspan products are recommended), or a SkyFi/StarSeek WiFi-to-serial device.

2.1.1 Mac OS X

AstroPlanner V2 currently requires Mac OS X 10.4 (Tiger) or later. It is a Universal application and so will run natively on both Intel- and PowerPC-based Macs. You'll need at least 250MB of disk space, and for a complete installation with all optional catalogues, 2GB of disk space.

2.1.2 Windows

AstroPlanner V2 requires Windows XP or later. You'll need at least 250MB of disk space, and for a complete installation with all optional catalogues, 2GB of disk space.

2.2 Telescope mount compatibility

AstroPlanner V2.0 has built-in drivers for the following computerised telescopes and mounts:

Astro-Physics GTO	**Orion** Intelliscope with COL
Celestron NexStar	**Orion** SynScan GoTo
Celestron Ultima 2000	**Sky Engineering** Sky Commander
GTD Pulsar 2	**Starmaster** Sky Tracker
iOptron GOTONOVA	**StellarCAT** ServoCAT
Meade LX200 Classic	**Takahashi** Temma
Meade LX200 GPS/R/ACF (Autostar II)	**Tasco** Starguide
Meade MAX Mount	**Vixen** SkySensor
Meade RCX400	**Vixen** SkySensor 2000PC
Meade ETX, DS, LX, LXD, LS series (Autostar)	**Vixen** Star Book
Meade Magellan	**Wildcard Innovations** Argo Navis

These drivers are available for both Mac and Windows.

Additionally, basic ASCOM is supported for the Windows version, so that if your telescope mount isn't listed above, you can use the ASCOM driver of your choice (note that only telescopes can be driven via the ASCOM system, not focusers, etc.)

2.3 Macintosh application installation

2.3.1 On-line

Download the application from the download web page:

http://www.astroplanner.net/download.html

The application is in the form of a disk image file (.dmg extension).

Figure 1: .dmg file in the Finder

If your browser does not mount and open the disk image for you, do so by double-clicking it in the Finder.

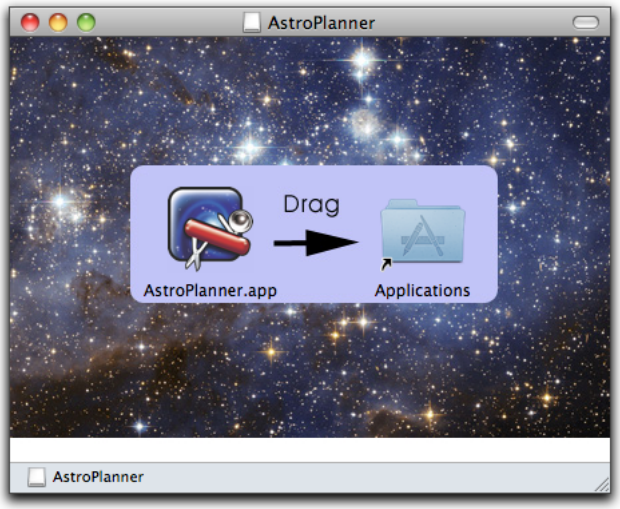


Figure 2: Disk image opened

Drag the application file to your Applications folder (or drag in onto the Applications icon in the disk image window). There is no installer - just run the AstroPlanner application.

2.3.2 DVD-ROM or USB Flash Drive

If you ordered the DVD-ROM or USB Flash Drive with the application, then mount the disk in your computer, find the AstroPlanner disk image and proceed as for the on-line installation above.

Note that if your DVD-ROM or USB Flash Drive is outdated, you might want to download the application since it will guarantee the latest version. If you don't have the ability or desire to download the application, you can always order the latest version of the application and catalogues on DVD-ROM or USB Flash Drive for a modest fee.

2.4 Windows application installation

2.4.1 On-line

Download the application from the download web page:

http://www.astroplanner.net/download.html

The application is in the form of an installer application (InstallAstroPlanner.exe).

Figure 3: Windows installer icon

Double-click the installer to install the application and supporting files on your hard disk.

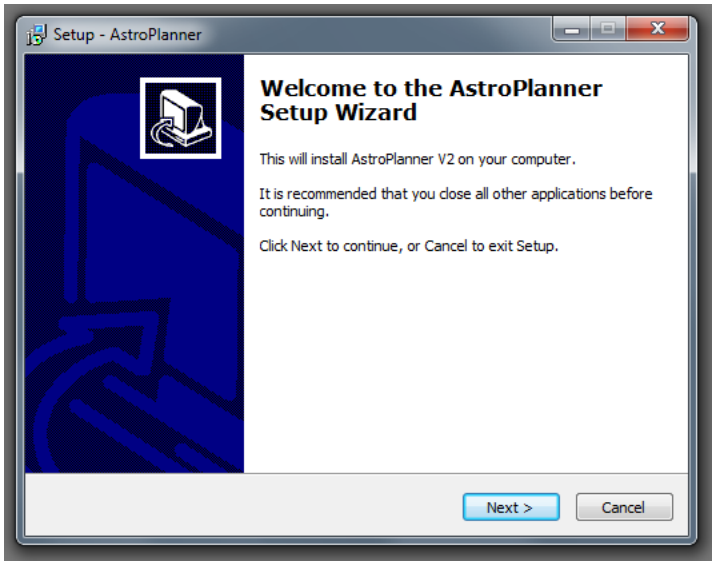

Setup - AstroPlanner
Welcome to the AstroPlanner Setup Wizard
This will install AstroPlanner V2 on your computer.
It is recommended that you close all other applications before continuing.
Click Next to continue, or Cancel to exit Setup.
Next >
Cancel

Figure 4: Windows installer in action

2.4.2 DVD-ROM or USB Flash Drive

If you ordered the DVD-ROM or USB Flash Drive with the application, then mount the disk in your computer. The installer should run automatically. If not, find the InstallAstroplanner.exe on the disk and double-click it. Proceed as for the on-line installation above.

Note that if your DVD-ROM or USB Flash Drive is outdated, you might want to download the application since it will guarantee the latest version. If you don't have the ability or desire to download the application, you can always order the latest version of the application and catalogues on DVD-ROM or USB Flash Drive for a modest fee.

2.4.3 Uninstalling

When AstroPlanner is installed it also includes information required to uninstall AstroPlanner and an Uninstall application.

2.5 Installing catalogues

When you first run AstroPlanner it only installs a few minimal catalogues by default (Bright Star, Messier, NGC). You will need to install more catalogues to make full use of the application. You can elect to install these catalogues by downloading them from the on-line web site or, if you have a DVD-ROM or USB Flash Drive containing catalogues, by installing them directly from there.

If you are running AstroPlanner for the first time, the Setup Wizard will give you the opportunity to install catalogues (see Section 4.3 on page 9 for first time users, or Section 24.1 on page 329 for installing catalogues via the Setup Wizard at a later date).

Otherwise you use the Catalogue Manager ***(File > Catalogue Manager...***) to manage your catalogues. This is detailed in Chapter 24 on page 329.

3 Unregistered users

If you are an unregistered user (i.e. you haven't yet paid for a licence, or need to pay for an upgrade to the current version), then you will find that some features are limited or unavailable to you. While you are welcome to continue using AstroPlanner you will need to register in order to remove these restrictions and limitations.

3.1 Limitations

The most obvious limitation is that each time you run the AstroPlanner application, you will be asked for your licence number. This is irritating, but might help to give you the incentive to register.

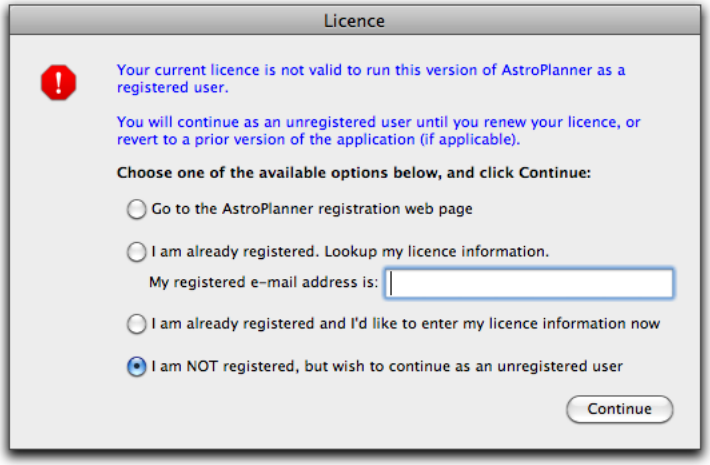

Licence
Your current licence is not valid to run this version of AstroPlanner as a registered user.
You will continue as an unregistered user until you renew your licence, or revert to a prior version of the application (if applicable).
Choose one of the available options below, and click Continue:
Go to the AstroPlanner registration web page
I am already registered. Lookup my licence information.
My registered e-mail address is:
I am already registered and I'd like to enter my licence information now
I am NOT registered, but wish to continue as an unregistered user
Continue

Figure 5: Unregistered user dialog

The second major limitation is that you are limited to the three installed catalogues (Bright Star, Messier and NGC). You cannot download or install any other catalogues. Note that if you are a registered AstroPlanner V1 user, but have not paid the upgrade fee (if required), you are also restricted to using these three catalogues, even if you have others installed via AstroPlanner V1.

Other limitations:

- No external catalogues can be used (USNO A2.0, USNO B1.0, UCAC3, etc.).
- No SIMBAD searches can be performed.
- You can download user-contributed plans only if they contain objects from your installed catalogues (i.e. Messier and NGC objects only)
- You cannot upload user-contributed plans or user-contributed scripts.
- You cannot import objects from files, or by downloading them (e.g. comets, minor planets, tour files, etc.)

3.2 How to register

Go to the web site in your browser:

http://www.astroplanner.net/

Navigate to the Purchase page where you will be able to see what your options are.

4 First-time users

If you have never used AstroPlanner before, this is what will happen the first time you run the application after installing it.

4.1 V1 enquiry

You'll be asked if you have an AstroPlanner V1.x installation on your computer. Since you are a first-time user, click ***No***.

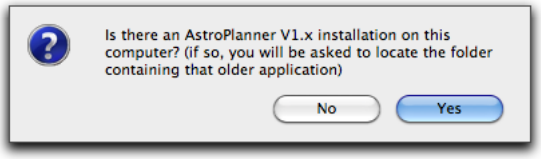
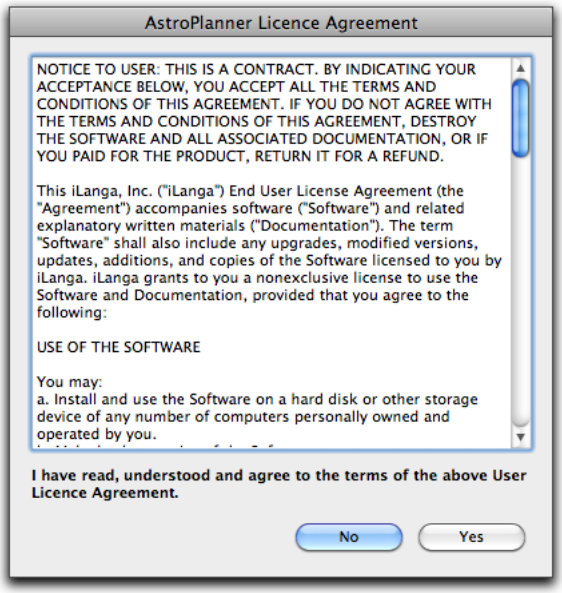

Is there an AstroPlanner V1.x installation on this computer? (if so, you will be asked to locate the folder containing that older application)
No
Yes

Figure 6: V1 installation enquiry

If you do have a V1.x installation or did have one in the past, you might get the V1 upgrade dialog. This is covered in Chapter 5 on page 16.

4.2 Licence

You'll be asked to agree to the (fairly liberal) AstroPlanner application licence. If you agree, click ***Yes***. If you don't, click ***No*** and the application immediately terminates.


AstroPlanner Licence Agreement
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You may:
a. Install and use the Software on a hard disk or other storage device of any number of computers personally owned and operated by you.
I have read, understood and agree to the terms of the above User Licence Agreement.
No
Yes

Figure 7: Licence agreement dialog

For your convenience, the text of the agreement is given below:

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4.3 Setup Wizard

As you are a first time user, the application needs you set up or customise various settings so that you can get going without further issue. To do this it presents a Setup Wizard dialog to lead you through the setup.

4.3.1 Licence information

The first thing you'll need to do is enter your licence information in the fields given (unless you have not yet registered, in which case leave the fields blank).

If you've misplaced your licence information, you can get it sent to you via e-mail by entering your e-mail address in the field on the right and clicking the ***Retrieve*** button. If you have changed your e-mail address since you registered, then you will not get a reply. Please contact support with your new e-mail address, remembering to include your name and the old e-mail address:

support@astroplanner.net

Once you have entered your licence info (or not), click the ***Next*** button.

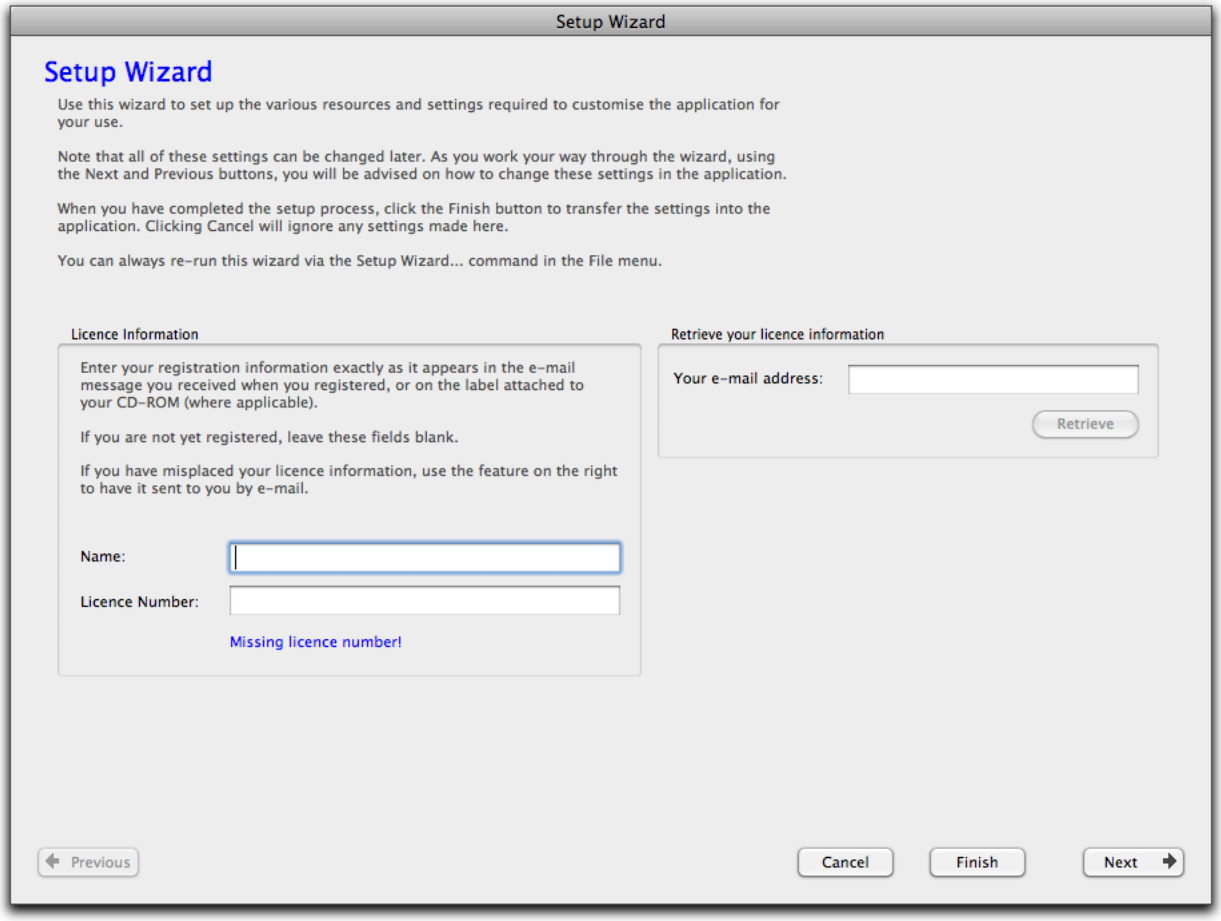
Setup Wizard
Setup Wizard
Use this wizard to set up the various resources and settings required to customise the application for your use.
Note that all of these settings can be changed later. As you work your way through the wizard, using the Next and Previous buttons, you will be advised on how to change these settings in the application.
When you have completed the setup process, click the Finish button to transfer the settings into the application. Clicking Cancel will ignore any settings made here.
You can always re-run this wizard via the Setup Wizard... command in the File menu.
Licence Information
Enter your registration information exactly as it appears in the e-mail message you received when you registered, or on the label attached to your CD-ROM (where applicable).
If you are not yet registered, leave these fields blank.
If you have misplaced your licence information, use the feature on the right to have it sent to you by e-mail.
Name:
Licence Number:
Missing licence number!
Retrieve your licence information
Your e-mail address:
Retrieve
Previous
Cancel
Finish
Next

Figure 8: Setup Wizard - licence information

4.3.2 Observing site data

AstroPlanner requires you to specify information about your observing site or sites. This information is used to figure out visibility at those sites. At least one site must be specified. You'll need to know the latitude and longitude where your site is situated, and its time zone.

However, if you live in the USA or Canada, AstroPlanner includes a database of place names and their geographic locations. Note that you don't have to be particularly accurate with defining the latitude or longitude. Even if you're out by a degree or two, it won't make much difference.

Enter the site information in the given fields. The world map will show where the site is (in case you give E/W or N/S mixed up), and will tell you if your GMT offset is acceptable. Click the ***Add this site*** button to add the site data to the resources.

Read the text on the right side of the dialog for additional instructions.

Note that you don't have to enter *all* of your possible observing sites at this time, since you can enter and edit them later. Just add your main site.

When you have finished, click the ***Next*** button to continue.

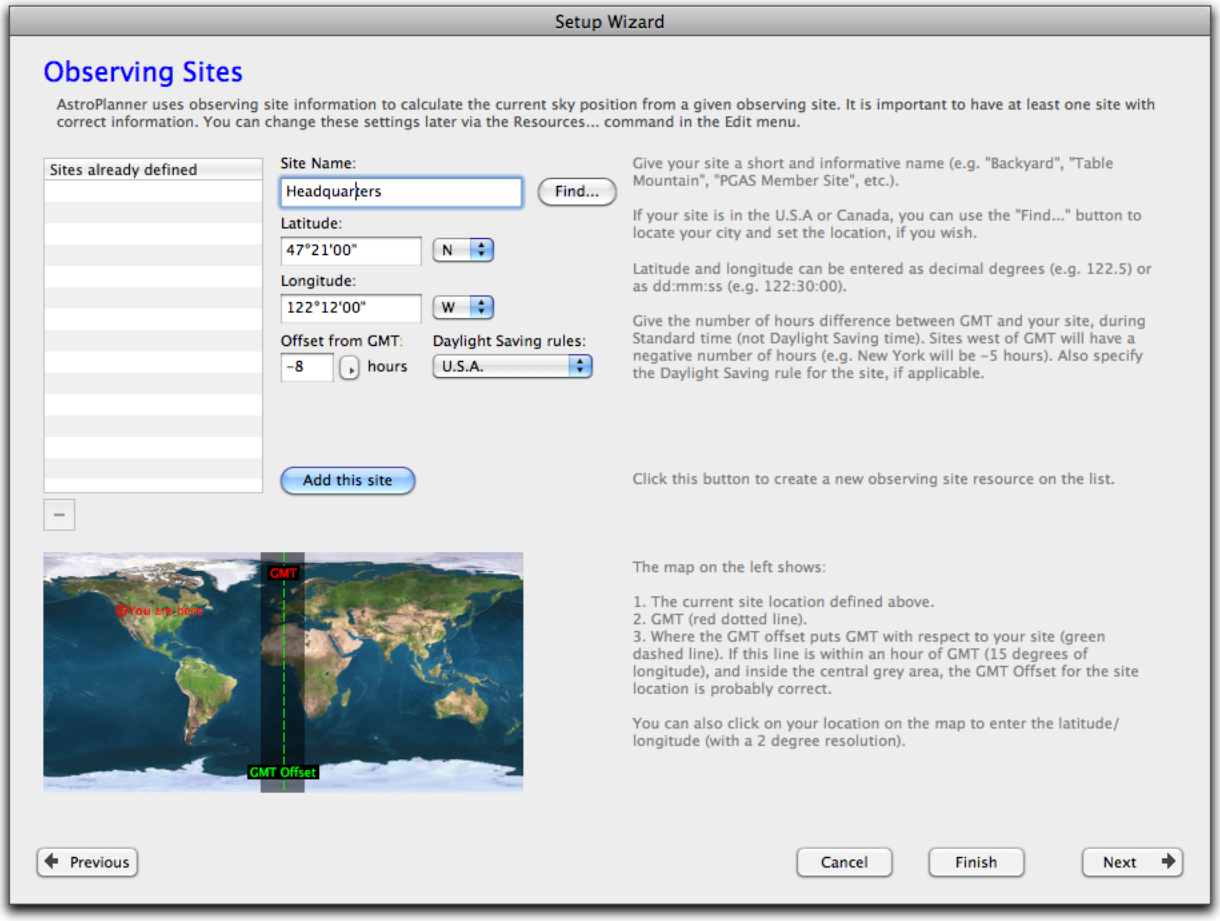
Setup Wizard
Observing Sites
AstroPlanner uses observing site information to calculate the current sky position from a given observing site. It is important to have at least one site with correct information. You can change these settings later via the Resources... command in the Edit menu.
Sites already defined
Site Name:
Headquarters
Find...
Latitude:
47°21'00"
N
Longitude:
122°12'00"
W
Offset from GMT:
-8
hours
Daylight Saving rules:
U.S.A.
Add this site
Give your site a short and informative name (e.g. "Backyard", "Table Mountain", "PGAS Member Site", etc.).
If your site is in the U.S.A or Canada, you can use the "Find..." button to locate your city and set the location, if you wish.
Latitude and longitude can be entered as decimal degrees (e.g. 122.5) or as dd:mm:ss (e.g. 122:30:00).
Give the number of hours difference between GMT and your site, during Standard time (not Daylight Saving time). Sites west of GMT will have a negative number of hours (e.g. New York will be -5 hours). Also specify the Daylight Saving rule for the site, if applicable.
Click this button to create a new observing site resource on the list.
GMT
You are here
GMT Offset
The map on the left shows:
1. The current site location defined above.
2. GMT (red dotted line).
3. Where the GMT offset puts GMT with respect to your site (green dashed line). If this line is within an hour of GMT (15 degrees of longitude), and inside the central grey area, the GMT Offset for the site location is probably correct.
You can also click on your location on the map to enter the latitude/longitude (with a 2 degree resolution).
Previous
Cancel
Finish
Next

Figure 9: Setup Wizard - Observing Sites

4.3.3 Telescope data

AstroPlanner also expects you to enter information about any telescopes you plan to use. The information is used to construct charts showing the view through such a telescope, and what you are likely to see.

The dialog includes a comprehensive list of commercially-available telescopes. If your telescope or telescopes are in that list, select the entry and click the ***Add*** button.

You can also add the information manually, and use the ***Add this telescope*** button to add the new telescope entry.

Click the ***Next*** button when you've finished.

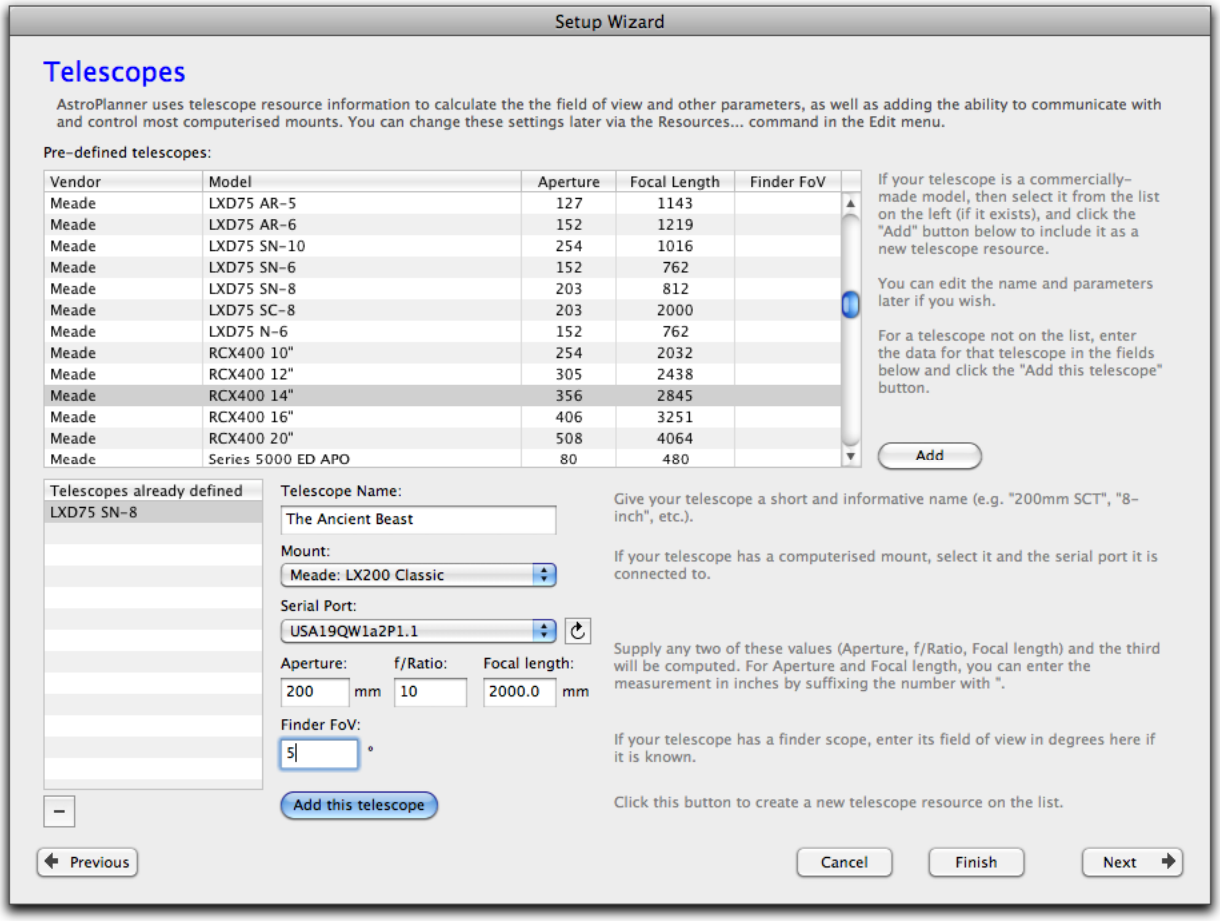
Setup Wizard
Telescopes
AstroPlanner uses telescope resource information to calculate the the field of view and other parameters, as well as adding the ability to communicate with and control most computerised mounts. You can change these settings later via the Resources... command in the Edit menu.
Pre-defined telescopes:
Vendor Model Aperture Focal Length Finder FoV
Meade LXD75 AR-5 127 1143
Meade LXD75 AR-6 152 1219
Meade LXD75 SN-10 254 1016
Meade LXD75 SN-6 152 762
Meade LXD75 SN-8 203 812
Meade LXD75 SC-8 203 2000
Meade LXD75 N-6 152 762
Meade RCX400 10" 254 2032
Meade RCX400 12" 305 2438
Meade RCX400 14" 356 2845
Meade RCX400 16" 406 3251
Meade RCX400 20" 508 4064
Meade Series 5000 ED APO 80 480
If your telescope is a commercially-made model, then select it from the list on the left (if it exists), and click the "Add" button below to include it as a new telescope resource.
You can edit the name and parameters later if you wish.
For a telescope not on the list, enter the data for that telescope in the fields below and click the "Add this telescope" button.
Add
Telescopes already defined
LXD75 SN-8
Telescope Name:
The Ancient Beast
Give your telescope a short and informative name (e.g. "200mm SCT", "8-inch", etc.).
Mount:
Meade: LX200 Classic
If your telescope has a computerised mount, select it and the serial port it is connected to.
Serial Port:
USA19QW1a2P1.1
Aperture: f/Ratio: Focal length:
200 mm 10 2000.0 mm
Supply any two of these values (Aperture, f/Ratio, Focal length) and the third will be computed. For Aperture and Focal length, you can enter the measurement in inches by suffixing the number with ".
Finder FoV:
5 °
If your telescope has a finder scope, enter its field of view in degrees here if it is known.
Add this telescope
Click this button to create a new telescope resource on the list.
Previous
Cancel
Finish
Next

Figure 10: Setup Wizard - Telescopes

4.3.4 Eyepiece data

You can also enter information about any eyepieces you plan to use. The information is used in conjunction with the telescope information to construct charts showing the view through such a telescope/eyepiece combination, and what you are likely to see.

The dialog includes a comprehensive list of commercially-available eyepiece. If your eyepiece or eyepieces are in that list, select the entry and click the ***Add*** button.

You can also add the information manually, and use the ***Add this eyepiece*** button to add the new eyepiece entry.

Click the ***Next*** button when you've finished.

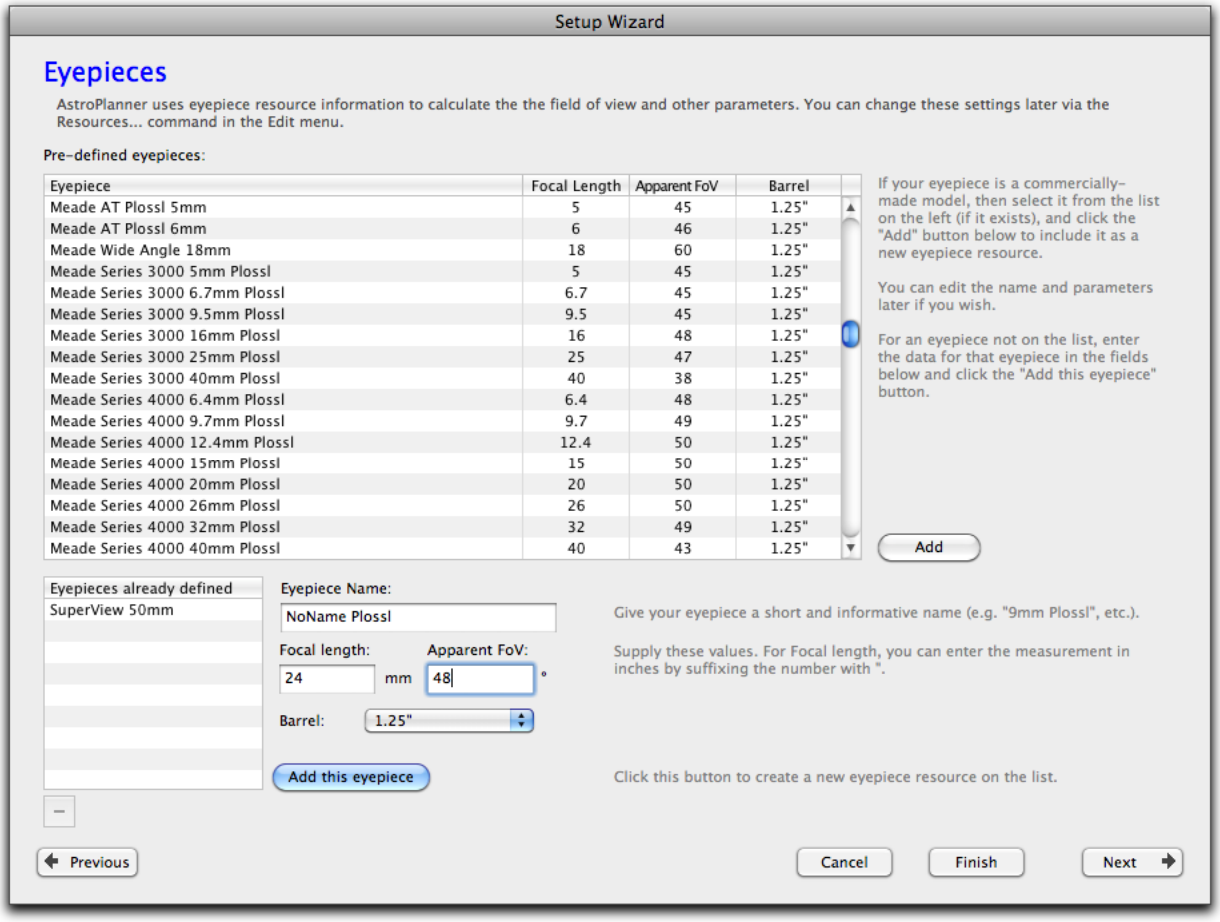
Setup Wizard
Eyepieces
AstroPlanner uses eyepiece resource information to calculate the the field of view and other parameters. You can change these settings later via the Resources... command in the Edit menu.
Pre-defined eyepieces:
Eyepiece
Focal Length
Apparent FoV
Barrel
Meade AT Plossl 5mm 5 45 1.25"
Meade AT Plossl 6mm 6 46 1.25"
Meade Wide Angle 18mm 18 60 1.25"
Meade Series 3000 5mm Plossl 5 45 1.25"
Meade Series 3000 6.7mm Plossl 6.7 45 1.25"
Meade Series 3000 9.5mm Plossl 9.5 45 1.25"
Meade Series 3000 16mm Plossl 16 48 1.25"
Meade Series 3000 25mm Plossl 25 47 1.25"
Meade Series 3000 40mm Plossl 40 38 1.25"
Meade Series 4000 6.4mm Plossl 6.4 48 1.25"
Meade Series 4000 9.7mm Plossl 9.7 49 1.25"
Meade Series 4000 12.4mm Plossl 12.4 50 1.25"
Meade Series 4000 15mm Plossl 15 50 1.25"
Meade Series 4000 20mm Plossl 20 50 1.25"
Meade Series 4000 26mm Plossl 26 50 1.25"
Meade Series 4000 32mm Plossl 32 49 1.25"
Meade Series 4000 40mm Plossl 40 43 1.25"
If your eyepiece is a commercially-made model, then select it from the list on the left (if it exists), and click the "Add" button below to include it as a new eyepiece resource.
You can edit the name and parameters later if you wish.
For an eyepiece not on the list, enter the data for that eyepiece in the fields below and click the "Add this eyepiece" button.
Add
Eyepieces already defined
SuperView 50mm
Eyepiece Name:
NoName Plossl
Give your eyepiece a short and informative name (e.g. "9mm Plossl", etc.).
Focal length:
Apparent FoV:
24
mm
48
°
Supply these values. For Focal length, you can enter the measurement in inches by suffixing the number with ".
Barrel:
1.25"
Add this eyepiece
Click this button to create a new eyepiece resource on the list.
Previous
Cancel
Finish
Next

Figure 11: Setup Wizard - Eyepieces

4.3.5 Catalogues

When you enter the Catalogues part of the wizard, you'll be asked if you want to install your catalogues from an AstroPlanner CD/DVD-ROM or USB Flash Drive, if you have such a thing. If you do, make sure the disk is inserted and ready to read. Then click ***Yes***.

If you'd rather access the on-line inventory and download any catalogues you might need, click ***No***.

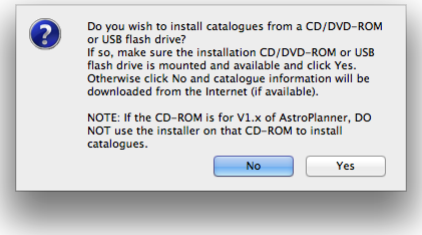
Do you wish to install catalogues from a CD/DVD-ROM or USB flash drive?
If so, make sure the installation CD/DVD-ROM or USB flash drive is mounted and available and click Yes. Otherwise click No and catalogue information will be downloaded from the Internet (if available).
NOTE: If the CD-ROM is for V1.x of AstroPlanner, DO NOT use the installer on that CD-ROM to install catalogues.
No
Yes

Figure 12: Catalogues from DVD-ROM or USB Flash Drive

A list of available catalogues is presented (on the right side). Check the checkboxes next to the catalogues you wish to install (if you want all of them, click the ***Select All*** button).

If you're not sure which ones you want, the application can choose some suitable ones for you. In this case, in the User Survey section on the left, check all the checkboxes next to equipment you own, and the kind of observing you plan to be doing. As you select options, suggested catalogues will be marked in green. You can use this as a guide, or just click the ***Select All Suggested*** button.

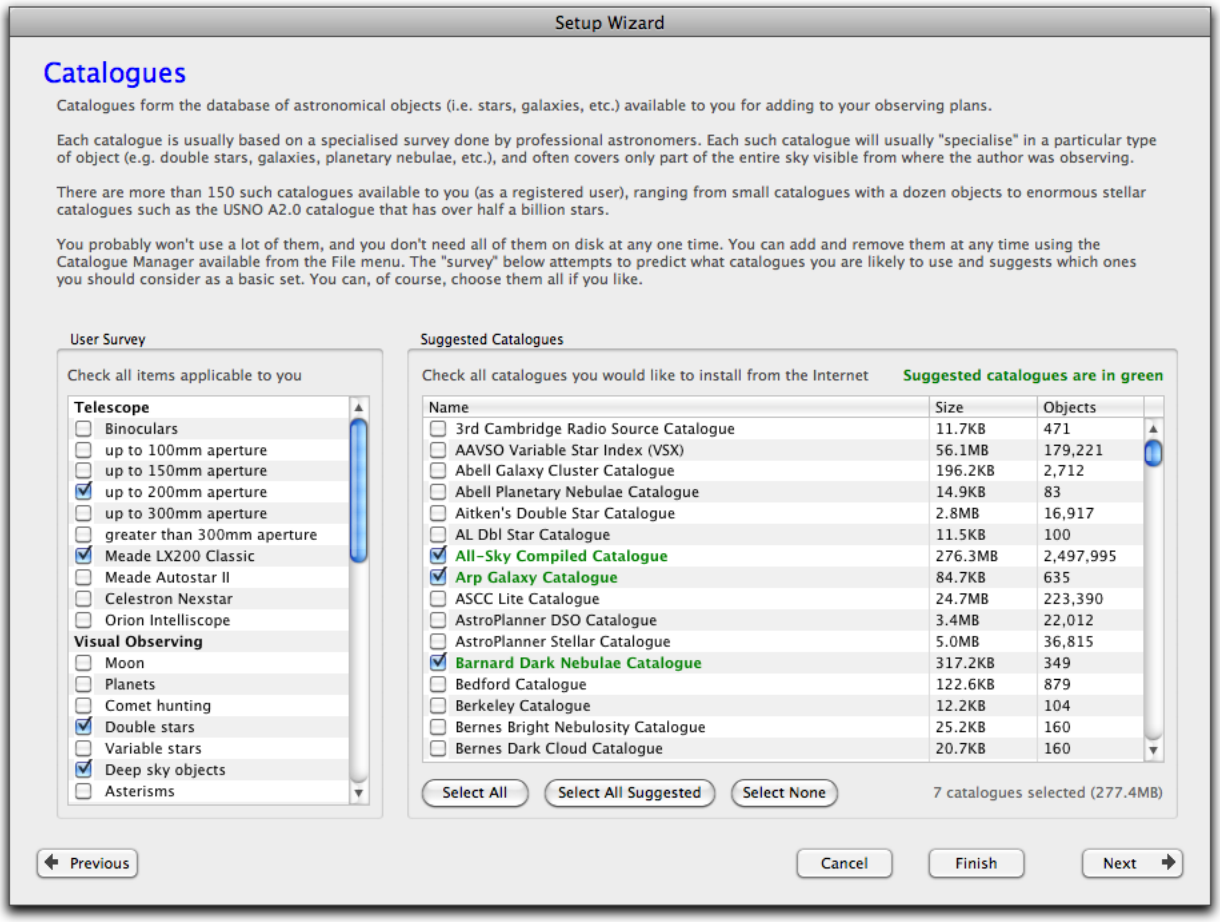
Setup Wizard
Catalogues
Catalogues form the database of astronomical objects (i.e. stars, galaxies, etc.) available to you for adding to your observing plans.
Each catalogue is usually based on a specialised survey done by professional astronomers. Each such catalogue will usually "specialise" in a particular type of object (e.g. double stars, galaxies, planetary nebulae, etc.), and often covers only part of the entire sky visible from where the author was observing.
There are more than 150 such catalogues available to you (as a registered user), ranging from small catalogues with a dozen objects to enormous stellar catalogues such as the USNO A2.0 catalogue that has over half a billion stars.
You probably won't use a lot of them, and you don't need all of them on disk at any one time. You can add and remove them at any time using the Catalogue Manager available from the File menu. The "survey" below attempts to predict what catalogues you are likely to use and suggests which ones you should consider as a basic set. You can, of course, choose them all if you like.
User Survey
Check all items applicable to you
Telescope
Binoculars
up to 100mm aperture
up to 150mm aperture
up to 200mm aperture
up to 300mm aperture
greater than 300mm aperture
Meade LX200 Classic
Meade Autostar II
Celestron Nexstar
Orion Intelliscope
Visual Observing
Moon
Planets
Comet hunting
Double stars
Variable stars
Deep sky objects
Asterisms
Suggested Catalogues
Check all catalogues you would like to install from the Internet
Suggested catalogues are in green
Name
Size
Objects
3rd Cambridge Radio Source Catalogue 11.7KB 471
AAVSO Variable Star Index (VSX) 56.1MB 179,221
Abell Galaxy Cluster Catalogue 196.2KB 2,712
Abell Planetary Nebulae Catalogue 14.9KB 83
Aitken's Double Star Catalogue 2.8MB 16,917
AL Dbl Star Catalogue 11.5KB 100
All-Sky Compiled Catalogue 276.3MB 2,497,995
Arp Galaxy Catalogue 84.7KB 635
ASCC Lite Catalogue 24.7MB 223,390
AstroPlanner DSO Catalogue 3.4MB 22,012
AstroPlanner Stellar Catalogue 5.0MB 36,815
Barnard Dark Nebulae Catalogue 317.2KB 349
Bedford Catalogue 122.6KB 879
Berkeley Catalogue 12.2KB 104
Bernes Bright Nebulosity Catalogue 25.2KB 160
Bernes Dark Cloud Catalogue 20.7KB 160
Select All
Select All Suggested
Select None
7 catalogues selected (277.4MB)
Previous
Cancel
Finish
Next

Figure 13: Setup Wizard - Catalogues

When you've finished, click the ***Next*** button. You'll be warned about the catalogues you selected.

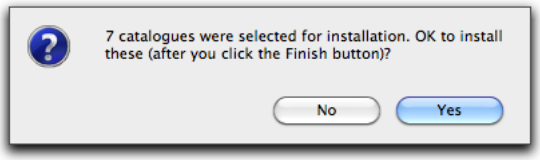

Figure 14: Catalogue warning

4.3.6 Sample Plan Document

This page of the wizard lets you create a sample plan document if you wish. Type in a suitable file name, and select some suitable astronomical objects to populate it with.

The file will be created on your desktop, and opened for you.

When you've finished, click the ***Next*** button.

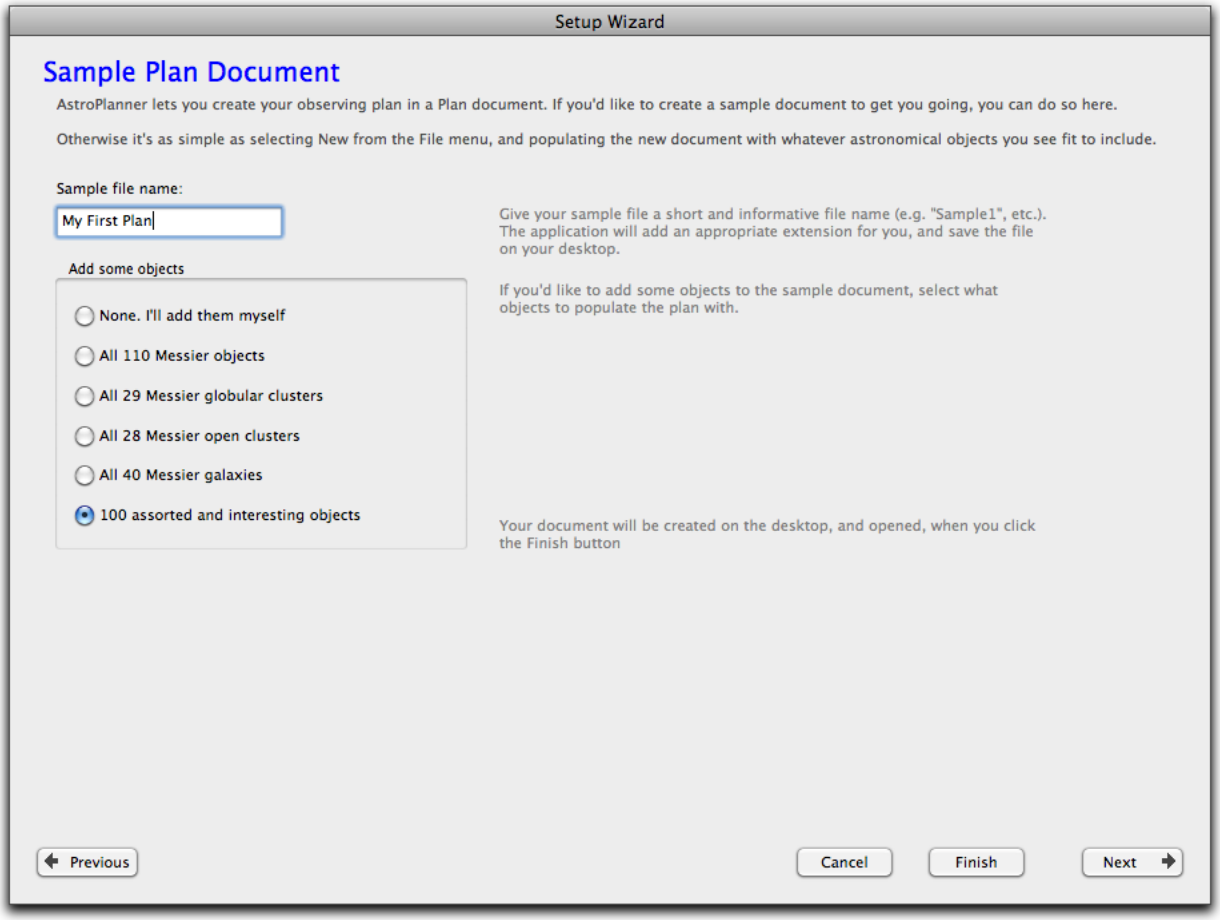
Setup Wizard
Sample Plan Document
AstroPlanner lets you create your observing plan in a Plan document. If you'd like to create a sample document to get you going, you can do so here.
Otherwise it's as simple as selecting New from the File menu, and populating the new document with whatever astronomical objects you see fit to include.
Sample file name:
My First Plan
Give your sample file a short and informative file name (e.g. "Sample1", etc.). The application will add an appropriate extension for you, and save the file on your desktop.
Add some objects
None. I'll add them myself
All 110 Messier objects
All 29 Messier globular clusters
All 28 Messier open clusters
All 40 Messier galaxies
100 assorted and interesting objects
If you'd like to add some objects to the sample document, select what objects to populate the plan with.
Your document will be created on the desktop, and opened, when you click the Finish button
Previous
Cancel
Finish
Next

Figure 15: Setup Wizard - Sample Plan Document

4.3.7 Completion

Finally, the actions you performed will be summarised on the Complete page.

To go ahead and create the resources, sample file, and/or install catalogues, click the ***Finish*** button. Otherwise click the ***Cancel*** button and all actions will be cancelled.

Note that you can call up the Setup Wizard at any time via the ***File > Setup Wizard*** menu item.

If you click ***Finish*** and there were catalogues selected to install, then the Catalogue manager window is opened, and you'll need to click the ***Install*** button to finish off the installation.

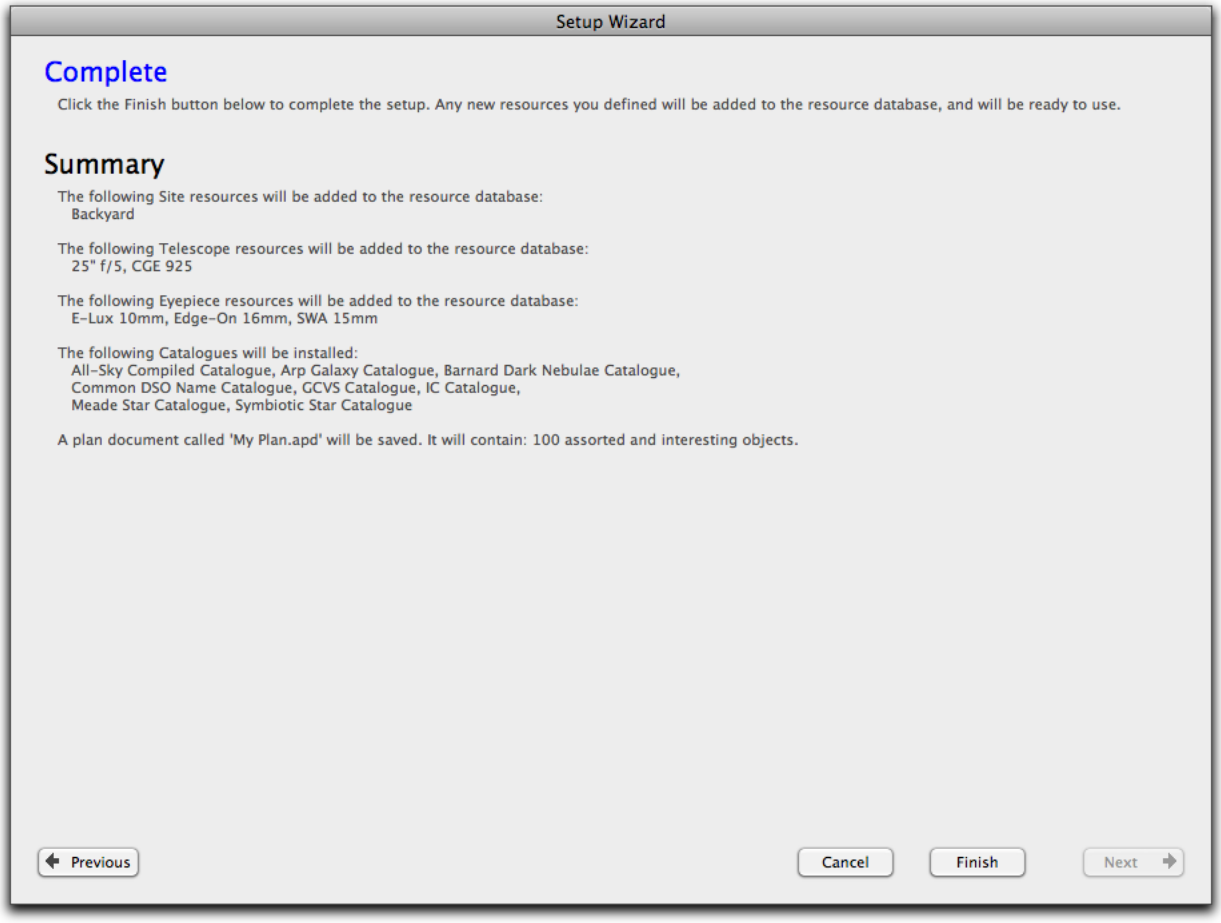
Setup Wizard
Complete
Click the Finish button below to complete the setup. Any new resources you defined will be added to the resource database, and will be ready to use.
Summary
The following Site resources will be added to the resource database:
Backyard
The following Telescope resources will be added to the resource database:
25" f/5, CGE 925
The following Eyepiece resources will be added to the resource database:
E-Lux 10mm, Edge-On 16mm, SWA 15mm
The following Catalogues will be installed:
All-Sky Compiled Catalogue, Arp Galaxy Catalogue, Barnard Dark Nebulae Catalogue,
Common DSO Name Catalogue, GCVS Catalogue, IC Catalogue,
Meade Star Catalogue, Symbiotic Star Catalogue
A plan document called 'My Plan.apd' will be saved. It will contain: 100 assorted and interesting objects.
Previous
Cancel
Finish
Next

Figure 16: Setup Wizard - Completion

5 Upgrading from the previous version

If you have been running AstroPlanner V1.x on your computer, you can upgrade the files and databases from that version, and in some instances, share common data between the two versions.

Note that V1.x and V2 operate independently of each other, so you can continue using both versions if you need to. However, V2 uses a new format for most of the files and databases used in AstroPlanner V1. There is an upgrade path for these files, but no downgrade path. For this reason we strongly suggest that once you upgrade to V2 you abandon V1, otherwise you could get inconsistencies between files and databases.

5.1 First time after upgrade

The first time you run V2 after installing it (see Chapter 2 on page 2) it checks to see if you have a V1 installation present (by looking for its preferences). If it can't find such an installation, it will ask you if you have one.

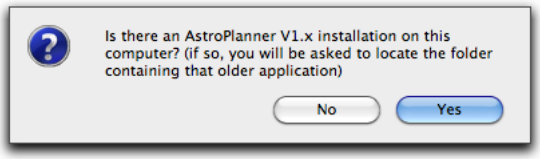
Is there an AstroPlanner V1.x installation on this computer? (if so, you will be asked to locate the folder containing that older application)
No
Yes

Figure 17: V1 installation enquiry

If you answer ***Yes***, then the application will ask you to navigate to the V1 folder (the folder containing the V1 application).

Once there, or if the application finds the V1 preferences, a V1 to V2 upgrade dialog appears. This dialog lets you specify files and databases to be converted for use by V2.

These are:

- The **Resources Database**.
- The **Catalogue Annotations Database** (if applicable).
- The **Observation Database** (if this cannot be found you might have specified that it is saved in another location other than the standard one. Use the ***Find It...*** button to locate it if necessary.

Check those items that you want to convert.

Other files do not require conversion, since the V2 format is the same as the V1 format. You can elect to perform one of several actions to each in order to use them in V2:

- **Use the V1.x items from their current location**. Use this action if you want to share the data between V1 and V2. This might make sense if you are planning on using both the older version of the application as well as the new. Just make sure you don't remove or move the old installation.
- **COPY the items to the default V2 location**. Make a copy of the V1 files for use by V2. This uses a bit more disk space, but is a lot safer if you ever decide to do away with V1.

- **MOVE the items to the default V2 location**. If you are planning on using V2 and never again launching V1, then this is the option that uses the least disk space.

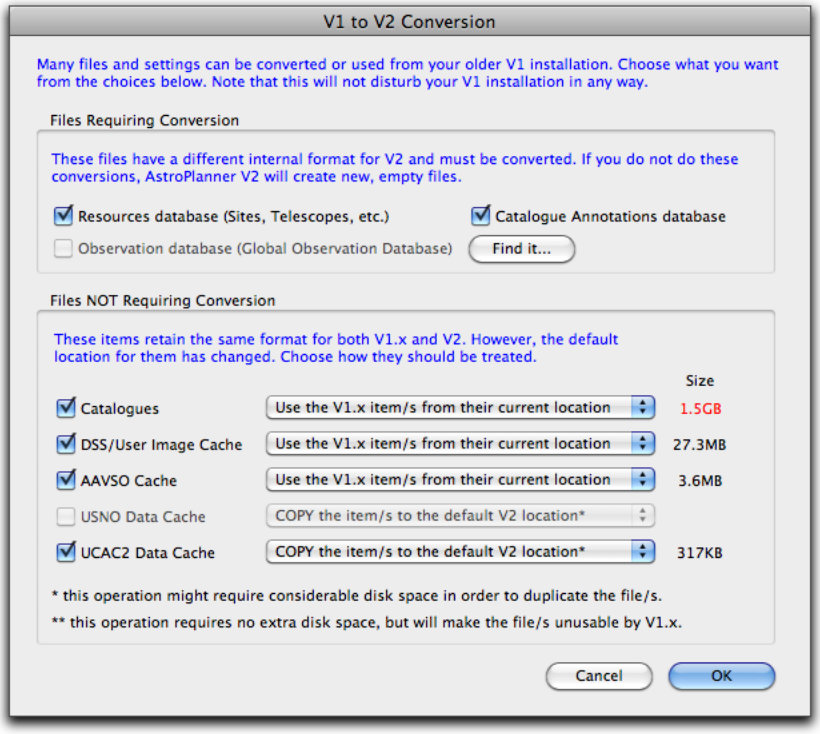
V1 to V2 Conversion
Many files and settings can be converted or used from your older V1 installation. Choose what you want from the choices below. Note that this will not disturb your V1 installation in any way.
Files Requiring Conversion
These files have a different internal format for V2 and must be converted. If you do not do these conversions, AstroPlanner V2 will create new, empty files.
Resources database (Sites, Telescopes, etc.)
Catalogue Annotations database
Observation database (Global Observation Database)
Find it...
Files NOT Requiring Conversion
These items retain the same format for both V1.x and V2. However, the default location for them has changed. Choose how they should be treated.
Size
Catalogues
Use the V1.x item/s from their current location
1.5GB
DSS/User Image Cache
Use the V1.x item/s from their current location
27.3MB
AAVSO Cache
Use the V1.x item/s from their current location
3.6MB
USNO Data Cache
COPY the item/s to the default V2 location*
UCAC2 Data Cache
COPY the item/s to the default V2 location*
317KB
* this operation might require considerable disk space in order to duplicate the file/s.
** this operation requires no extra disk space, but will make the file/s unusable by V1.x.
Cancel
OK

Figure 18: V1 to V2 conversion dialog

When you click ***OK*** the files will get converted, copied and or moved. Note that if you are running on a Macintosh with Mac OS X 10.7 (Lion) or later, additional steps are required (see Section 5.3.1 on page 18).

Note for those who might notice: the new file format is significantly more compact, robust, and efficient. Don't worry if your file sizes shrink by 50% or more, the data are all there.

If you need to do this operation again in the future, see Section 29.4.4 on page 394.

5.2 Opening V1.x plan documents

Any V1 plan document will also need to be converted for V2 use. When you open a V1-formatted plan document using ***File > Open...*** the following dialog appears.

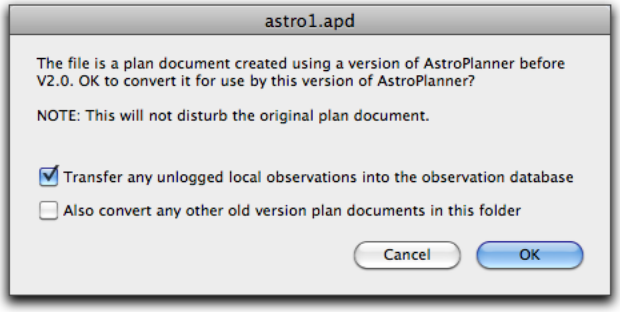
astro1.apd
The file is a plan document created using a version of AstroPlanner before V2.0. OK to convert it for use by this version of AstroPlanner?
NOTE: This will not disturb the original plan document.
Transfer any unlogged local observations into the observation database
Also convert any other old version plan documents in this folder
Cancel
OK

Figure 19: Opening a V1 plan document

You can choose to convert the plan document (the original V1 file is not disturbed). You can also elect to transfer any local observations from the V1 plan document into the V2 observation database (if the observations are already in the database they will be ignored).

There is also an option to convert any other V1 plan documents in the same folder as the one you're opening.

The conversion is then done, creating a new file with the same name as the original, prefixed with "V2-".

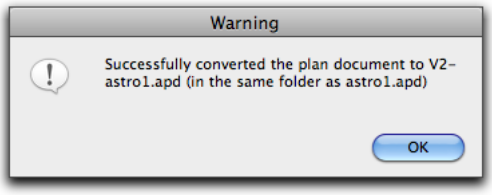

Figure 20: Conversion warning

5.3 Special issues for Mac OS X Lion users

It is not possible to directly convert V1 files to V2 in Mac OS X 10.7 (Lion) or later, for technical reasons[1]. Hence Lion users have a bit more work to do to convert V1 documents.

5.3.1 Converting V1 databases

When you attempt to convert V1 databases the first time you run (see Section 5.1 on page 16), you receive this warning:

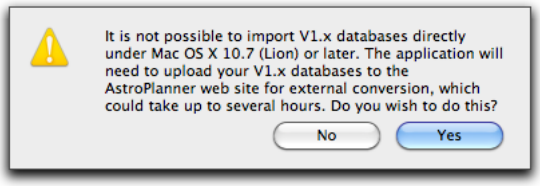
It is not possible to import V1.x databases directly under Mac OS X 10.7 (Lion) or later. The application will need to upload your V1.x databases to the AstroPlanner web site for external conversion, which could take up to several hours. Do you wish to do this?
No
Yes

Figure 21: Mac OS X Lion Warning

If you choose to go ahead, the following dialog asks you for your email address:

Conversion Confirmation
Please enter the e-mail address to which to send a "conversion complete" message. Leave blank if you don't want a confirmation message.
E-Mail Address:
joe@citizen.net
Cancel
OK

Figure 22: Conversion confirmation

1. For the curious, read this: http://blog.astroplanner.net/?p=153

The files to be converted are uploaded to the AstroPlanner web site. The following message is displayed:

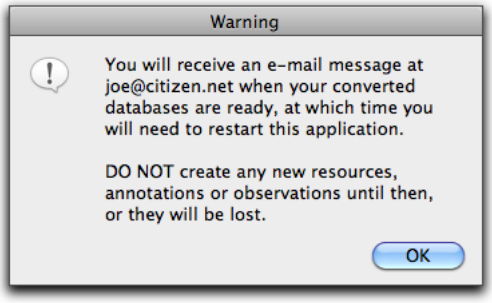
Warning
You will receive an e-mail message at joe@citizen.net when your converted databases are ready, at which time you will need to restart this application.
DO NOT create any new resources, annotations or observations until then, or they will be lost.
OK

Figure 23: Conversion warning

After a suitable amount of time (anything from minutes to hours) you will receive an e-mail message notifying you that the documents were converted and are ready. If you didn't supply an e-mail address, you won't get notified.

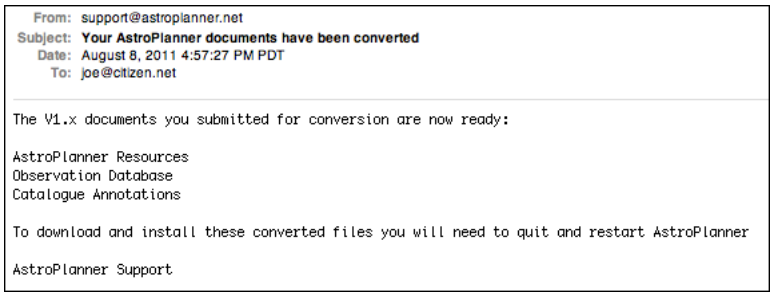
From: support@astroplanner.net
Subject: Your AstroPlanner documents have been converted
Date: August 8, 2011 4:57:27 PM PDT
To: joe@citizen.net
The V1.x documents you submitted for conversion are now ready:
AstroPlanner Resources
Observation Database
Catalogue Annotations
To download and install these converted files you will need to quit and restart AstroPlanner
AstroPlanner Support

Figure 24: Conversion e-mail message

In order to use the converted databases, quit and restart AstroPlanner. Every time you restart AstroPlanner, it checks to see if any conversions are pending and if so it checks their status on-line (if there's an Internet connection available). If the files are ready, it downloads them and issues the following message:

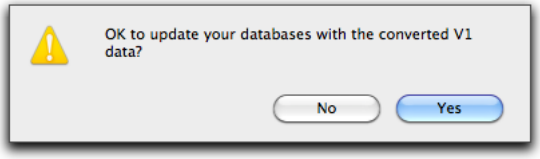

Figure 25: Update database message

Assuming you say ***Yes***, the databases are then copied into place and you are requested to quit and restart again.

Figure 26: Restart message

5.3.2 Converting V1 plan documents

When you attempt to open a V1 plan document (via, say, ***File > Open...***) you will receive this warning:

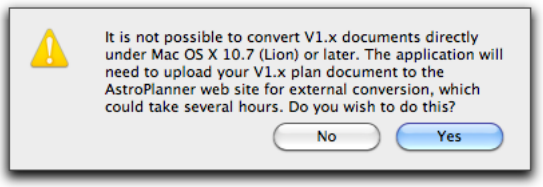
It is not possible to convert V1.x documents directly under Mac OS X 10.7 (Lion) or later. The application will need to upload your V1.x plan document to the AstroPlanner web site for external conversion, which could take several hours. Do you wish to do this?
No
Yes

Figure 27: Lion conversion warning

You then get the "usual" conversion confirmation dialog, with the addition of an (optional) e-mail address.

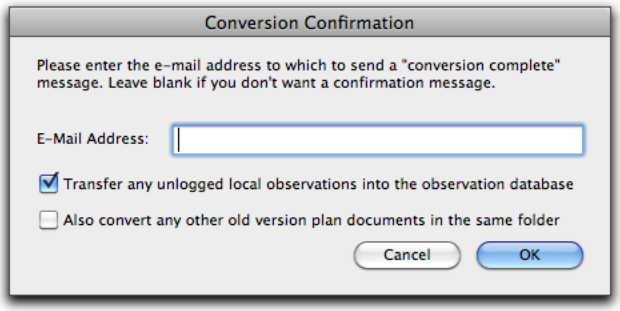
Conversion Confirmation
Please enter the e-mail address to which to send a "conversion complete" message. Leave blank if you don't want a confirmation message.
E-Mail Address:
Transfer any unlogged local observations into the observation database
Also convert any other old version plan documents in the same folder
Cancel
OK

Figure 28: Lion Plan Conversion dialog

The file or files to be converted are uploaded to the AstroPlanner web site. You receive a warning (in this case no e-mail address was specified).

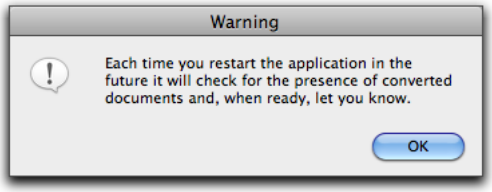
Warning
Each time you restart the application in the future it will check for the presence of converted documents and, when ready, let you know.
OK

Figure 29: Warning (with no e-mail address specified)

Every time you restart AstroPlanner, it checks to see if any conversions are pending and if so it checks their status on-line (if there's an Internet connection available). If the files are ready, it downloads them and issues the following message:

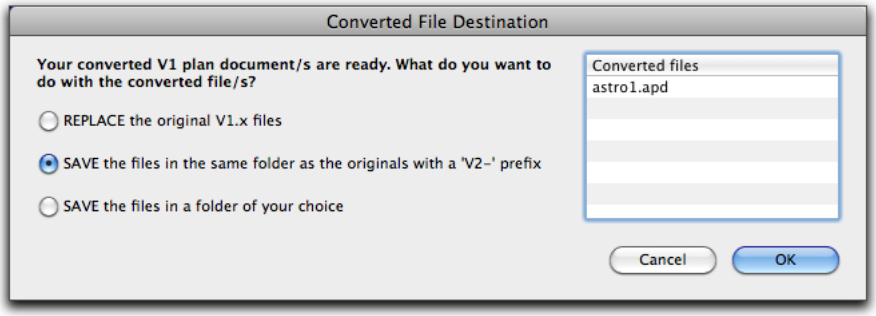
Converted File Destination
Your converted V1 plan document/s are ready. What do you want to do with the converted file/s?
REPLACE the original V1.x files
SAVE the files in the same folder as the originals with a 'V2-' prefix
SAVE the files in a folder of your choice
Converted files
astro1.apd
Cancel
OK

Figure 30: Converted file destination dialog

6 Quick start tutorial

The aim of this chapter is to lead you through some typical tasks you would use AstroPlanner for. By the end of this chapter you should be familiar enough with the application to use it without assistance, and be ready to start experimenting and exploring. We suggest you follow along and duplicate what is described here yourself, as it will aid in your familiarisation.

It's assumed that you have the application open, and that you've completed the installation tasks.

We're going to do the following:

- Set up an observing plan for an article in Sky & Telescope magazine, which just happens to be available for download.
- Set up another observing plan for another Sky & Telescope article that is not available.
- Use the Plan Creation Wizard and let AstroPlanner set up a custom plan for you.

Once we've done that we'll pick one of these plans and do some observing.

6.1 Creating a new plan

6.1.1 Setting up a plan that someone else has already done for you

For illustrative purposes, let's say we just read the article on pages 67 through 70 of the September 2011 issue of Sky & Telescope magazine, entitled *In Praise of the Great Dark North*, by David Rodger. This article talks about a selection of interesting objects in the northern sky. We'd like to set up an observing plan to look at these objects. Perhaps we'll get lucky and someone has already done the work for you and is willing to share. Let's check the on-line user-contributed plan depository.

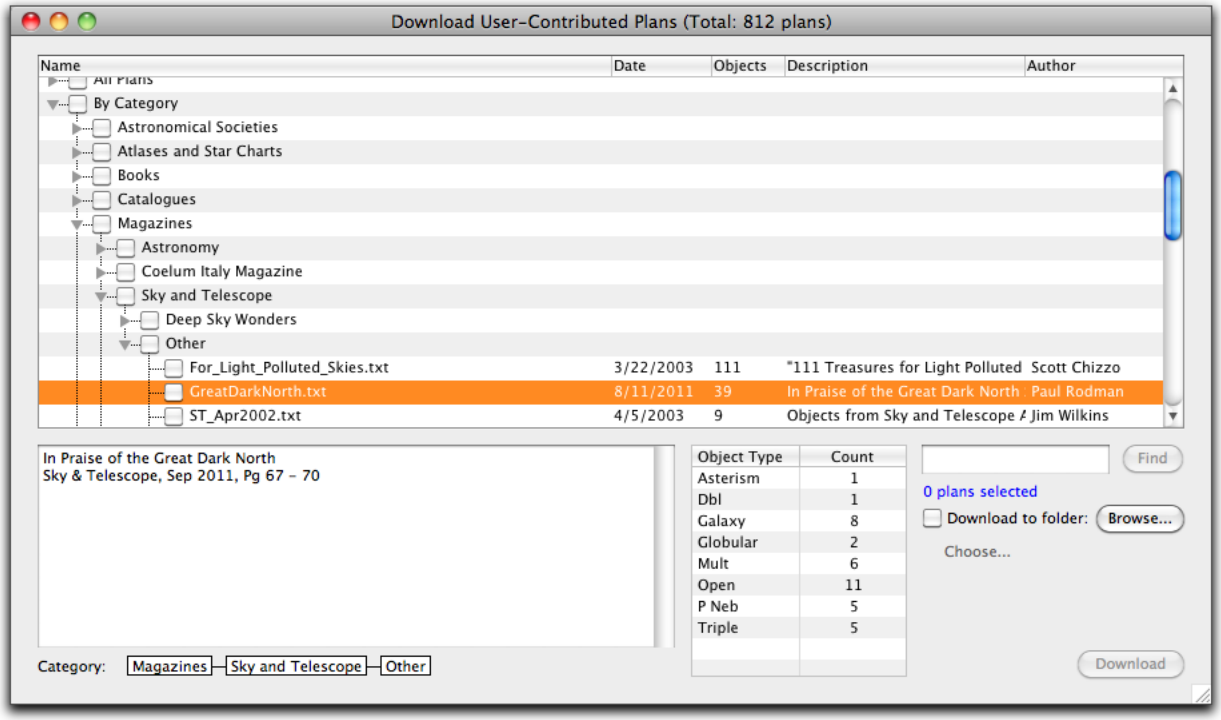

Figure 31: User-contributed plans

Use ***File > User-Contributed Plans > Download...*** (assuming you are currently connected to the Internet). The window shown in Figure 31 appears. You can look for the item manually in the hierarchical list (you'll find it under **By Category > Magazines > Sky and Telescope > Other**), or even quicker by typing *Great Dark North* into the Find field (centre right) and clicking ***Find***.

Figure 32: Using the Find feature

Select the *GreatDarkNorth.txt* entry by clicking the checkbox next to it and then clicking the ***Download*** button. The plan is downloaded and opened. Close the user-contributed plans window and, if you so choose, save the *GreatDarkNorth* plan on your hard disk.

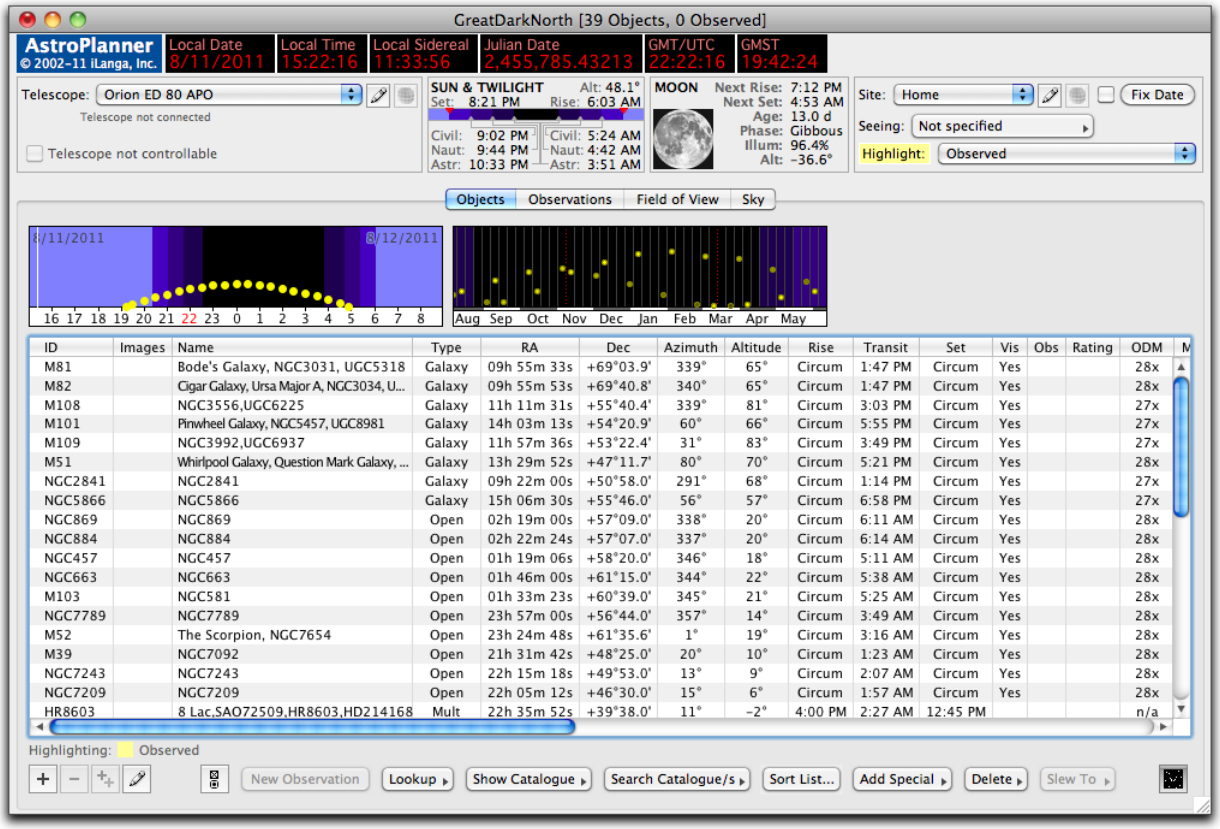
GreatDarkNorth [39 Objects, 0 Observed]
AstroPlanner
© 2002–11 iLanga, Inc.
Local Date 8/11/2011
Local Time 15:22:16
Local Sidereal 11:33:56
Julian Date 2,455,785.43213
GMT/UTC 22:22:16
GMST 19:42:24
Telescope: Orion ED 80 APO
Telescope not connected
Telescope not controllable
SUN & TWILIGHT
Set: 8:21 PM
Rise: 6:03 AM
Alt: 48.1°
Civil: 9:02 PM
Naut: 9:44 PM
Astr: 10:33 PM
Civil: 5:24 AM
Naut: 4:42 AM
Astr: 3:51 AM
MOON
Next Rise: 7:12 PM
Next Set: 4:53 AM
Age: 13.0 d
Phase: Gibbous
Illum: 96.4%
Alt: -36.6°
Site: Home
Fix Date
Seeing: Not specified
Highlight: Observed
Objects
Observations
Field of View
Sky
8/11/2011
8/12/2011
16 17 18 19 20 21 22 23 0 1 2 3 4 5 6 7 8
Aug Sep Oct Nov Dec Jan Feb Mar Apr May
ID Images Name Type RA Dec Azimuth Altitude Rise Transit Set Vis Obs Rating ODM
M81 Bode's Galaxy, NGC3031, UGC5318 Galaxy 09h 55m 33s +69°03.9' 339° 65° Circum 1:47 PM Circum Yes 28x
M82 Cigar Galaxy, Ursa Major A, NGC3034, U... Galaxy 09h 55m 53s +69°40.8' 340° 65° Circum 1:47 PM Circum Yes 28x
M108 NGC3556,UGC6225 Galaxy 11h 11m 31s +55°40.4' 339° 81° Circum 3:03 PM Circum Yes 27x
M101 Pinwheel Galaxy, NGC5457, UGC8981 Galaxy 14h 03m 13s +54°20.9' 60° 66° Circum 5:55 PM Circum Yes 27x
M109 NGC3992,UGC6937 Galaxy 11h 57m 36s +53°22.4' 31° 83° Circum 3:49 PM Circum Yes 27x
M51 Whirlpool Galaxy, Question Mark Galaxy, ... Galaxy 13h 29m 52s +47°11.7' 80° 70° Circum 5:21 PM Circum Yes 28x
NGC2841 NGC2841 Galaxy 09h 22m 00s +50°58.0' 291° 68° Circum 1:14 PM Circum Yes 27x
NGC5866 NGC5866 Galaxy 15h 06m 30s +55°46.0' 56° 57° Circum 6:58 PM Circum Yes 27x
NGC869 NGC869 Open 02h 19m 00s +57°09.0' 338° 20° Circum 6:11 AM Circum Yes 28x
NGC884 NGC884 Open 02h 22m 24s +57°07.0' 337° 20° Circum 6:14 AM Circum Yes 28x
NGC457 NGC457 Open 01h 19m 06s +58°20.0' 346° 18° Circum 5:11 AM Circum Yes 28x
NGC663 NGC663 Open 01h 46m 00s +61°15.0' 344° 22° Circum 5:38 AM Circum Yes 28x
M103 NGC581 Open 01h 33m 23s +60°39.0' 345° 21° Circum 5:25 AM Circum Yes 28x
NGC7789 NGC7789 Open 23h 57m 00s +56°44.0' 357° 14° Circum 3:49 AM Circum Yes 28x
M52 The Scorpion, NGC7654 Open 23h 24m 48s +61°35.6' 1° 19° Circum 3:16 AM Circum Yes 28x
M39 NGC7092 Open 21h 31m 42s +48°25.0' 20° 10° Circum 1:23 AM Circum Yes 28x
NGC7243 NGC7243 Open 22h 15m 18s +49°53.0' 13° 9° Circum 2:07 AM Circum Yes 28x
NGC7209 NGC7209 Open 22h 05m 12s +46°30.0' 15° 6° Circum 1:57 AM Circum Yes 28x
HR8603 8 Lac,SAO72509,HR8603,HD214168 Mult 22h 35m 52s +39°38.0' 11° -2° 4:00 PM 2:27 AM 12:45 PM n/a
Highlighting: Observed
New Observation
Lookup
Show Catalogue
Search Catalogue/s
Sort List...
Add Special
Delete
Slew To

Figure 33: GreatDarkNorth observing plan

6.1.2 Setting up a plan manually

The next plan we are going to set up is for an article in the same issue of Sky & Telescope magazine: *Deep Sky Wonders: The Berkeley Clusters* by Sue French (pages 56 to 58, September 2011 issue). This time we won't assume someone else already uploaded the plan for our convenience, but we'll enter the objects manually.

Note that the Berkeley Catalogue is available (for registered users) which makes this a lot easier. However, for the sake of this exercise, we'll assume the Berkeley Catalogue has not been installed.

On page 57, French conveniently gives us a table containing details about the objects she refers to in the article. Here is a summary:

Object ID	Magnitude	Size	RA	Dec
NGC 6749	12.4	4'	19h 05.3m	+01° 54'
NGC 6791	9.5	10'	19h 20.9m	+37° 46'
IC 1310	~10	4'	20h 10.0m	+34° 58'
Berk 82	~9	4'	19h 11.3m	+13° 07'
Messier 29	6.6	10'	20h 24.1m	+38° 30'
Berk 86	7.9	7'	20h 20.2m	+38° 41'
Berk 87	~7	10'	20h 21.6m	+37° 24'

We're now going to enter these objects manually.

Create a new plan document (***File > New***).

Create a new object by clicking the ***+*** button at the bottom left of the object list. This reveals the New Object dialog. Type in the ID of the first object, NGC 6749 (you can skip the space if you like). Hit the Return/Enter key or click the ***Best*** button. NGC 6749 is found in the catalogues and added to the plan.

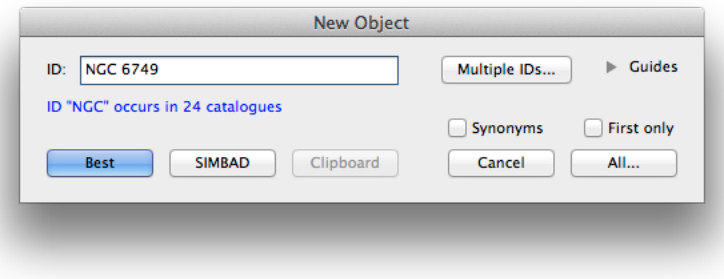

Figure 34: New object dialog

Repeat the above procedure for NGC 6791, and IC 1310[1]. The next object is Berk 82. This object can be found in the Berkeley Catalogue, but as mentioned above, we'll assume it isn't installed. Click the ***+*** button as before, but this time just click the ***Empty*** button. This creates an empty entry. To edit this entry you will need to reveal the editing fields by clicking on the ***Show editing fields*** button (the small button, fourth from the left underneath the object list).

Into the **ID** field type "Berk 82".

Into the **Right Ascension** fields type "19" and "11.3".

1. Note that you'll need the IC Catalogue installed. Unregistered users are out of luck, and should proceed as for Berk 82.

Into the **Declination** fields type "13" and "7".

Into the **Magnitude** field type "9".

Into the **Size** field type "4".

Use the popup to the right of the **Type** field to choose "Open" as the object type.

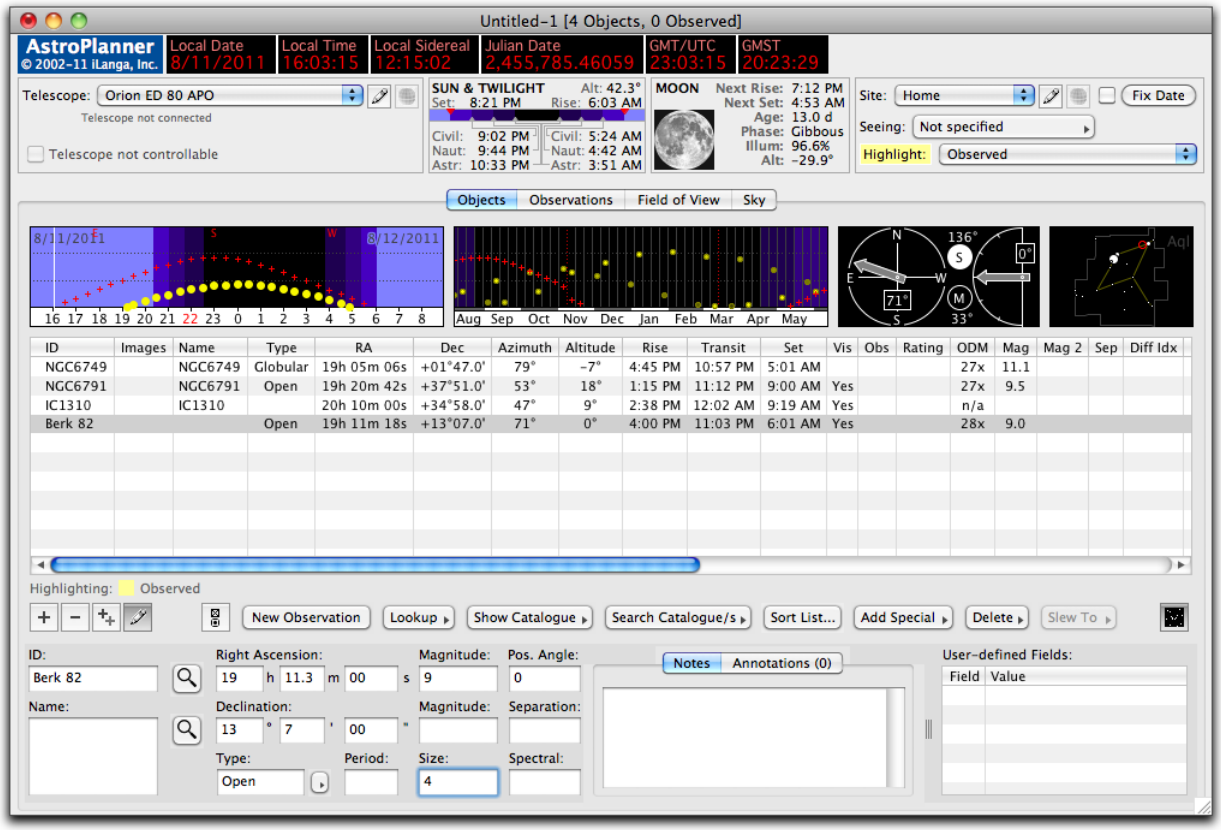

Figure 35: Entering Berk 82 manually

We're going to demonstrate another way to enter Messier 29 (M29). From the ***Show Catalogue*** pop-up button under the list of objects, choose to show the Messier Catalogue.

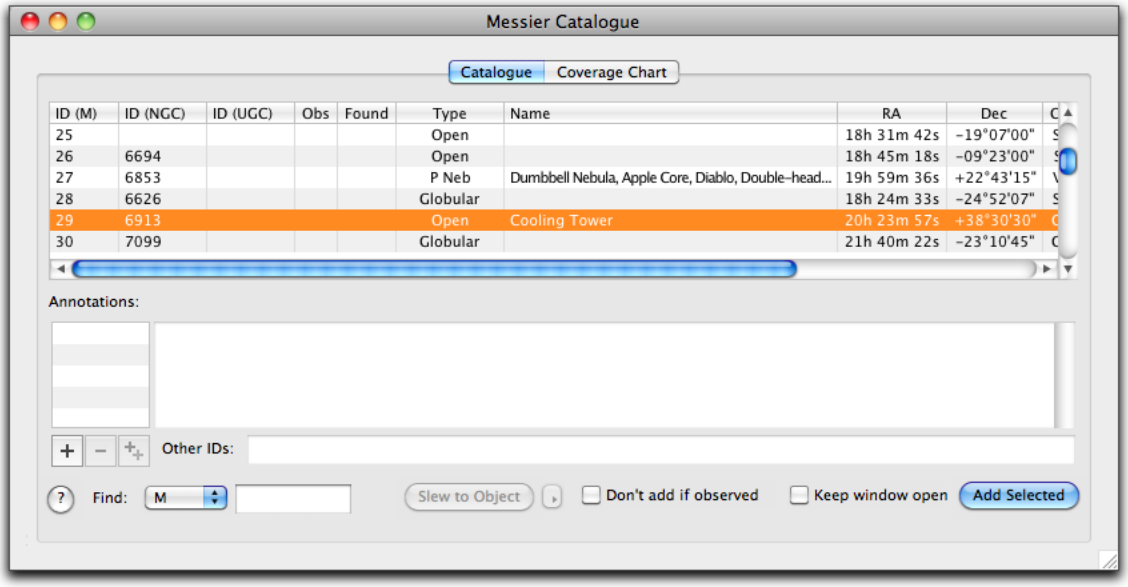
Messier Catalogue
Catalogue
Coverage Chart
ID (M) ID (NGC) ID (UGC) Obs Found Type Name RA Dec
25 Open 18h 31m 42s -19°07'00"
26 6694 Open 18h 45m 18s -09°23'00"
27 6853 P Neb Dumbbell Nebula, Apple Core, Diablo, Double-head... 19h 59m 36s +22°43'15"
28 6626 Globular 18h 24m 33s -24°52'07"
29 6913 Open Cooling Tower 20h 23m 57s +38°30'30"
30 7099 Globular 21h 40m 22s -23°10'45"
Annotations:
Other IDs:
Find:
M
Slew to Object
Don't add if observed
Keep window open
Add Selected

Figure 36: Selecting M29 directly from the catalogue

Select the entry for M29 and click the ***Add Selected*** button (or drag the object from the window onto the object list in your plan).

Add the final two objects (Berk 86 and Berk 87) using one the above techniques.

Save the plan document to hard disk if you wish.

6.1.3 Letting the Plan Creation Wizard create a plan for you

The Plan Creation Wizard creates a custom observing plan just for you.

Start the wizard using the ***File > Plan Creation Wizard...*** menu command.

Plan Creation Wizard
Plan Creation Wizard
Use this wizard to create a new plan document customised for your observing skills, observing site, date, time and observing equipment.
An internal database of interesting and/or challenging objects is used to create the plan for you. If that does not contain suitable objects, your catalogue collection will be searched for potential candidate objects.
You can choose to ignore objects that you have already observed (i.e. there's at least one observation logged for the object), and you'll get a chance to reject unsuitable objects at the end of the process.
Previous
Criteria...
Cancel
Finish
Next

Figure 37: Plan Creation Wizard dialog

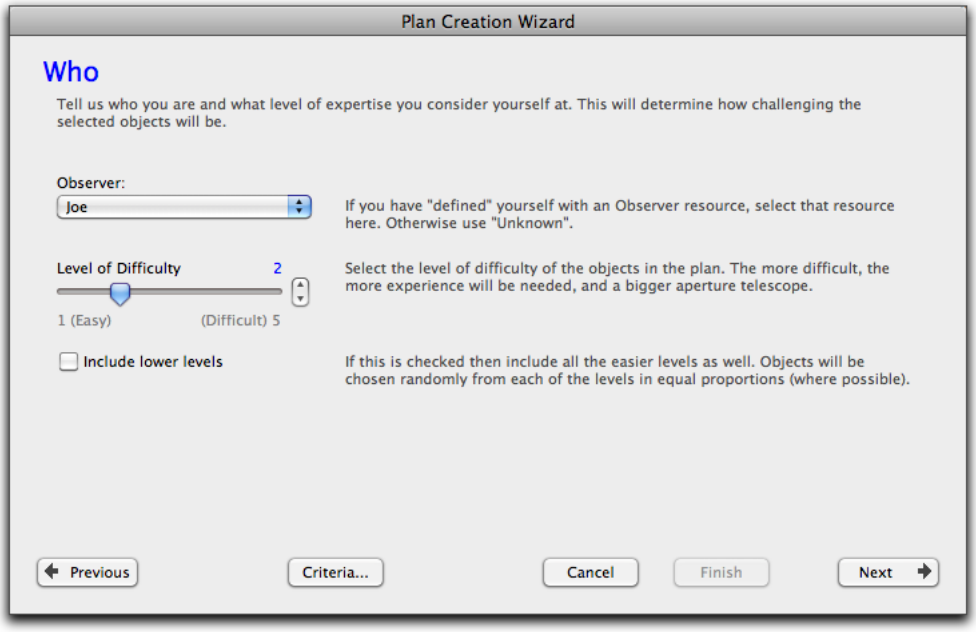
Plan Creation Wizard
Who
Tell us who you are and what level of expertise you consider yourself at. This will determine how challenging the selected objects will be.
Observer:
Joe
If you have "defined" yourself with an Observer resource, select that resource here. Otherwise use "Unknown".
Level of Difficulty
2
Select the level of difficulty of the objects in the plan. The more difficult, the more experience will be needed, and a bigger aperture telescope.
1 (Easy)
(Difficult) 5
Include lower levels
If this is checked then include all the easier levels as well. Objects will be chosen randomly from each of the levels in equal proportions (where possible).
Previous
Criteria...
Cancel
Finish
Next

Figure 38: Plan Creation Wizard - Who

Use the ***Next*** button to move through the stages required to build a plan. At any stage you can also use the ***Previous*** button to go back and change an option if you need to do so.

The second panel (**Who**) lets you specify the observer (so we can take into account such aspects as age and visual accuity[1]). If you haven't created an Observer resource just use the "Unknown" setting[2].

We also specify the level of difficulty for the objects in the resulting observing plan. You can specify five levels, from **Easy** (probably observable in poor skies with minimal equipment and experience) through **Difficult** (probably requiring a lot of experience and large aperture telescopes).

The third panel (**Where and When**) specifies where you will be observing from (your observing site) and when you plan to do the observing. These settings are used to determine what objects will be visible for you. It's not reasonable to choose objects that either never rise above the horizon at your observing site, or objects that never rise during the observing period, but might be visible at other times of the year.

You select the Observing site resource[2]. You then need to specify the dates/times you plan to do your observing (make sure the **Restrict to** option is set to **Date/time**). In our case, we are doing our observing at the Winter Star Party site in Florida, during Winter (go figure), and we'll plan on doing our observing between the start of nautical twilight and 2am (when we collapse into our sleeping bag).

---

1. In the current version of AstroPlanner, these aspects are *not* taken into account, so any observer has the same weight as any other observer.

2. If you want to or need to set up such a resource you can skip ahead to Section 6.2 on page 30. However, you will need to cancel from this dialog first.

Plan Creation Wizard
Where and When
Specify the observing site you will be observing from (previously set up as a Site resource), and the date/time you plan to do your observing. This information will determine what objects are going to be visible during your observing session. The more specific you are, the better.
Alternatively, you can specify one or more constellations to restrict the chosen objects to.
Observing site:
Winter Star Party, Florida
Restrict to:
Date/time
Constellation/s
Date/s:
Winter
Time/s:
After nautical twilight
to
To time:
2:00 AM
Previous
Criteria...
Cancel
Finish
Next

Figure 39: Plan Creation Wizard - Where & When

The next panel (**How**) lets you choose what instruments (telescopes or binoculars) you intend to be using. Check the appropriate entries[2].

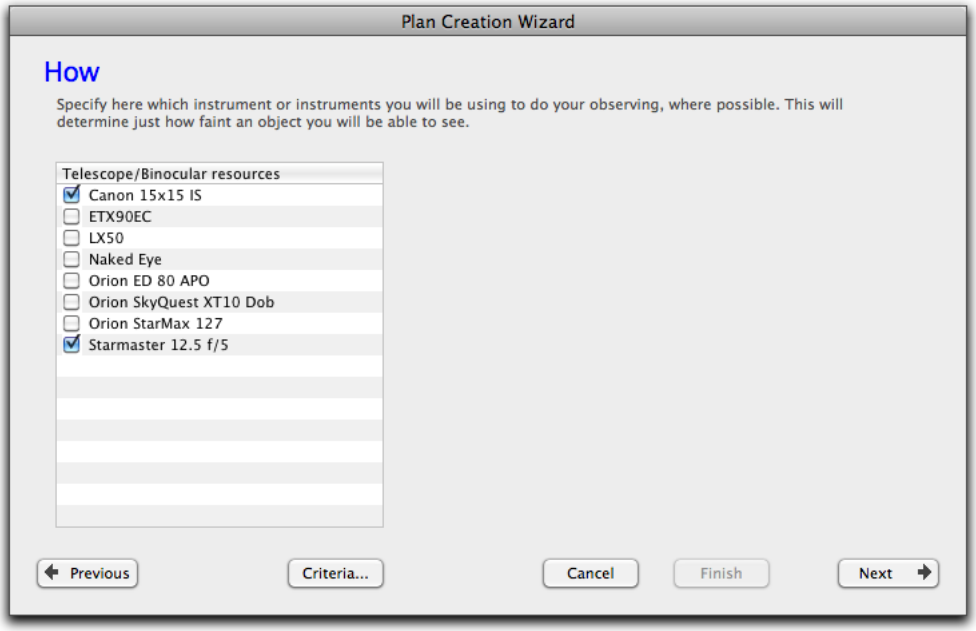

Figure 40: Plan Creation Wizard - How

The next panel (**What**) specifies the kinds of objects you want to observe and how many. Select one or more object types by checking the appropriate checkboxes. Don't worry about the list of catalogues - that's for more advanced and specialised work.

Select the maximum number of objects you'd like in the observing plan. In this case we'll choose a maximum of 20 (the actual number found might be fewer).

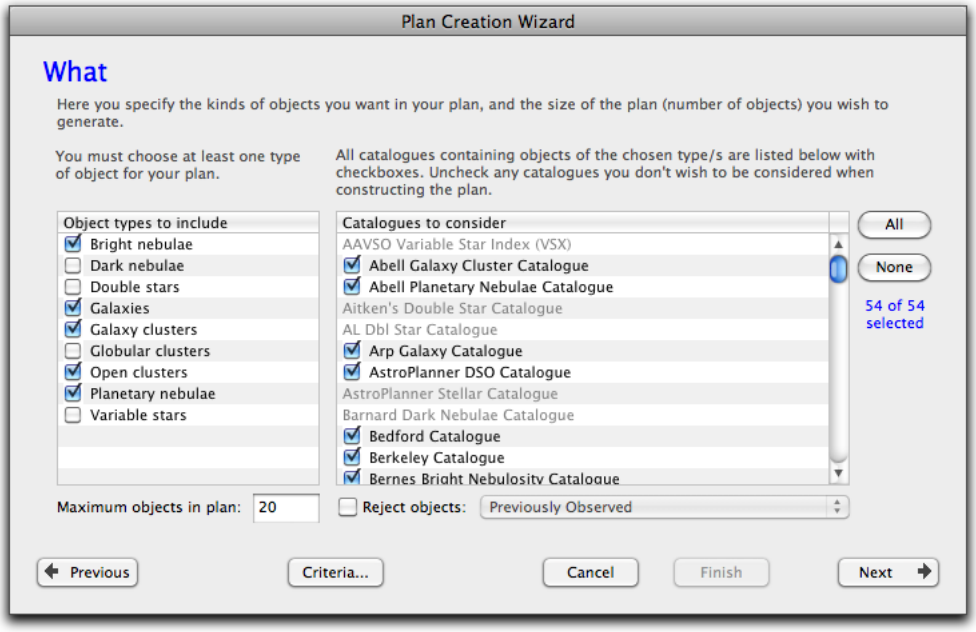

Figure 41: Plan Creation Wizard - What

The final panel (Complete) lets you select whether to create a new, untitled plan document for your objects, or to add them to a currently-open plan document. We'll choose a new document.

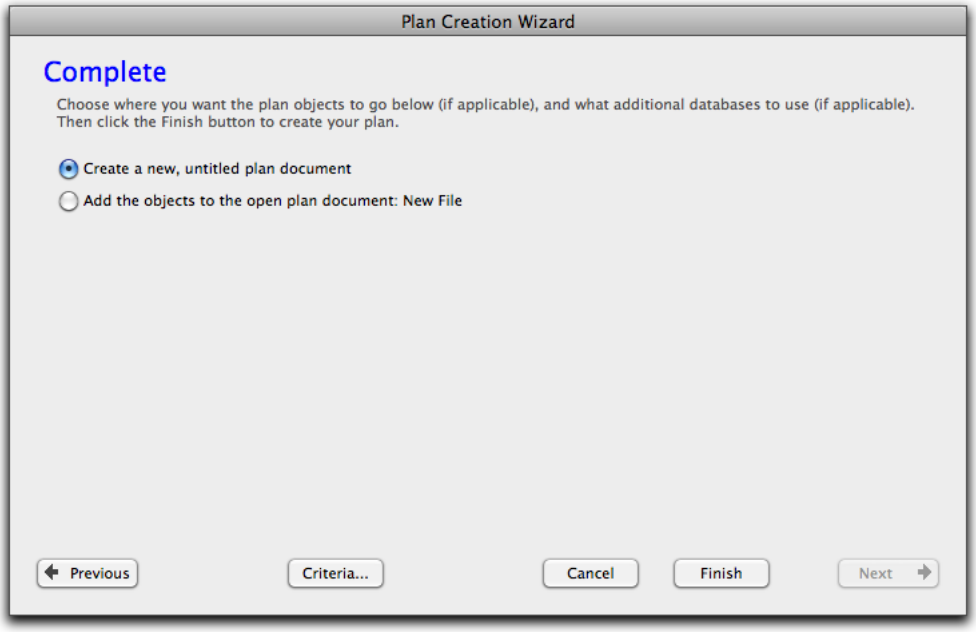
Plan Creation Wizard
Complete
Choose where you want the plan objects to go below (if applicable), and what additional databases to use (if applicable). Then click the Finish button to create your plan.
Create a new, untitled plan document
Add the objects to the open plan document: New File
Previous
Criteria...
Cancel
Finish
Next

Figure 42: Plan Creation Wizard - Complete

When you click the ***Finish*** button a new document is created with (in this case) 20 objects in it. You can save the plan document with whatever name you see fit to give it.

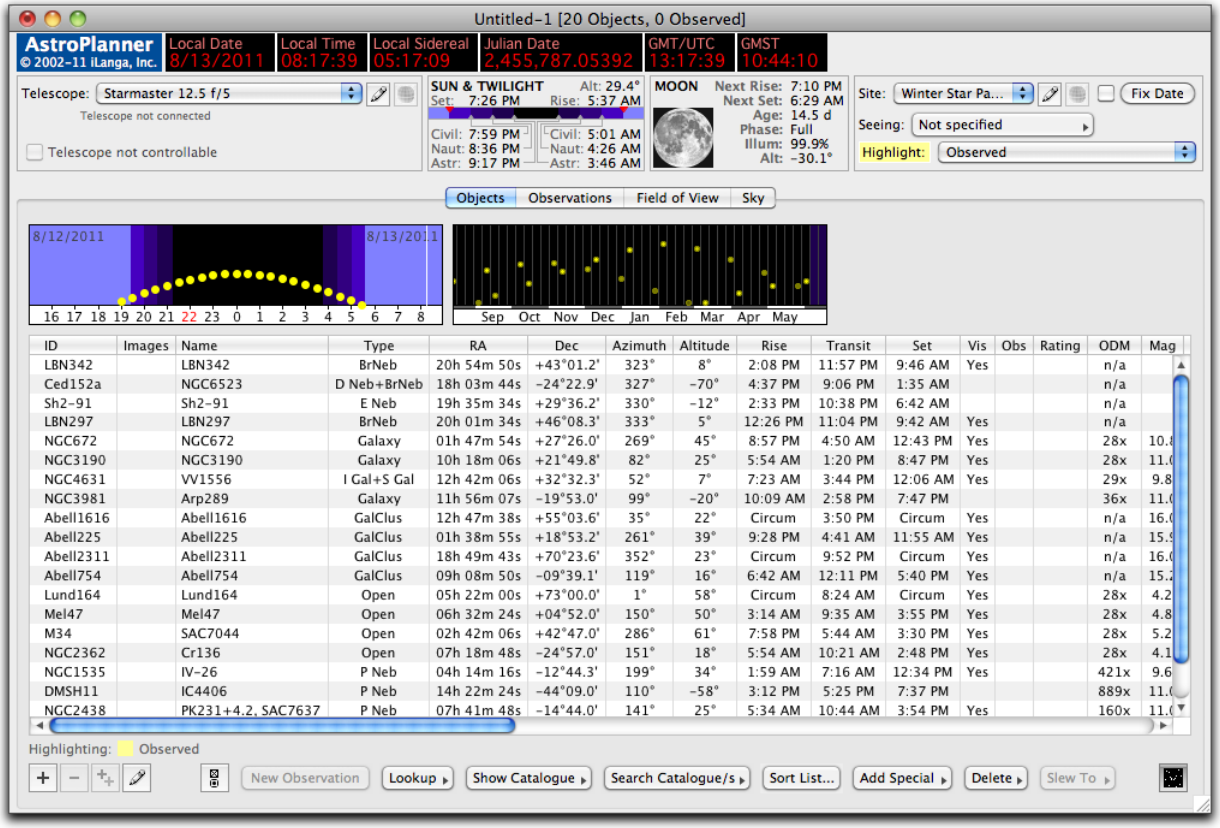
Untitled-1 [20 Objects, 0 Observed]
AstroPlanner
© 2002-11 iLanga, Inc.
Local Date 8/13/2011
Local Time 08:17:39
Local Sidereal 05:17:09
Julian Date 2,455,787.05392
GMT/UTC 13:17:39
GMST 10:44:10
Telescope: Starmaster 12.5 f/5
Telescope not connected
Telescope not controllable
SUN & TWILIGHT Alt: 29.4°
Set: 7:26 PM Rise: 5:37 AM
Civil: 7:59 PM Civil: 5:01 AM
Naut: 8:36 PM Naut: 4:26 AM
Astr: 9:17 PM Astr: 3:46 AM
MOON
Next Rise: 7:10 PM
Next Set: 6:29 AM
Age: 14.5 d
Phase: Full
Illum: 99.9%
Alt: -30.1°
Site: Winter Star Pa...
Fix Date
Seeing: Not specified
Highlight: Observed
Objects
Observations
Field of View
Sky
8/12/2011
8/13/2011
16 17 18 19 20 21 22 23 0 1 2 3 4 5 6 7 8
Sep Oct Nov Dec Jan Feb Mar Apr May
ID Images Name Type RA Dec Azimuth Altitude Rise Transit Set Vis Obs Rating ODM Mag
LBN342 LBN342 BrNeb 20h 54m 50s +43°01.2' 323° 8° 2:08 PM 11:57 PM 9:46 AM Yes n/a
Ced152a NGC6523 D Neb+BrNeb 18h 03m 44s -24°22.9' 327° -70° 4:37 PM 9:06 PM 1:35 AM n/a
Sh2-91 Sh2-91 E Neb 19h 35m 34s +29°36.2' 330° -12° 2:33 PM 10:38 PM 6:42 AM n/a
LBN297 LBN297 BrNeb 20h 01m 34s +46°08.3' 333° 5° 12:26 PM 11:04 PM 9:42 AM Yes n/a
NGC672 NGC672 Galaxy 01h 47m 54s +27°26.0' 269° 45° 8:57 PM 4:50 AM 12:43 PM Yes 28x
NGC3190 NGC3190 Galaxy 10h 18m 06s +21°49.8' 82° 25° 5:54 AM 1:20 PM 8:47 PM Yes 28x
NGC4631 VV1556 I Gal+S Gal 12h 42m 06s +32°32.3' 52° 7° 7:23 AM 3:44 PM 12:06 AM Yes 29x
NGC3981 Arp289 Galaxy 11h 56m 07s -19°53.0' 99° -20° 10:09 AM 2:58 PM 7:47 PM 36x
Abell1616 Abell1616 GalClus 12h 47m 38s +55°03.6' 35° 22° Circum 3:50 PM Circum Yes n/a
Abell225 Abell225 GalClus 01h 38m 55s +18°53.2' 261° 39° 9:28 PM 4:41 AM 11:55 AM Yes n/a
Abell2311 Abell2311 GalClus 18h 49m 43s +70°23.6' 352° 23° Circum 9:52 PM Circum Yes n/a
Abell754 Abell754 GalClus 09h 08m 50s -09°39.1' 119° 16° 6:42 AM 12:11 PM 5:40 PM Yes n/a
Lund164 Lund164 Open 05h 22m 00s +73°00.0' 1° 58° Circum 8:24 AM Circum Yes 28x
Mel47 Mel47 Open 06h 32m 24s +04°52.0' 150° 50° 3:14 AM 9:35 AM 3:55 PM Yes 28x
M34 SAC7044 Open 02h 42m 06s +42°47.0' 286° 61° 7:58 PM 5:44 AM 3:30 PM Yes 28x
NGC2362 Cr136 Open 07h 18m 48s -24°57.0' 151° 18° 5:54 AM 10:21 AM 2:48 PM Yes 28x
NGC1535 IV-26 P Neb 04h 14m 16s -12°44.3' 199° 34° 1:59 AM 7:16 AM 12:34 PM Yes 421x
DMSH11 IC4406 P Neb 14h 22m 24s -44°09.0' 110° -58° 3:12 PM 5:25 PM 7:37 PM 889x
NGC2438 PK231+4.2, SAC7637 P Neb 07h 41m 48s -14°44.0' 141° 25° 5:34 AM 10:44 AM 3:54 PM Yes 160x
Highlighting: Observed
New Observation
Lookup
Show Catalogue
Search Catalogue/s
Sort List...
Add Special
Delete
Slew To

Figure 43: Plan Creation Wizard - The resulting observing plan

For more information on the Plan Creation Wizard see Section 11.3 on page 90.

6.2 Setting up resources

When you first used AstroPlanner (assuming you didn't upgrade from an earlier version, or cancel from the Setup Wizard), the Setup Wizard asked you to enter some basic information about your observing site or sites, telescopes and eyepieces. All of these entities are called "resources" (see Section 8.5 on page 46). You will occasionally need to edit these resources in order to add, modify or delete them. We'll do this to add a telescope with a computerised mount for use later in this chapter (don't worry if you don't have an actual computerised mount - we'll fake it).

To edit resources, use the ***Edit > Resources...*** menu command.

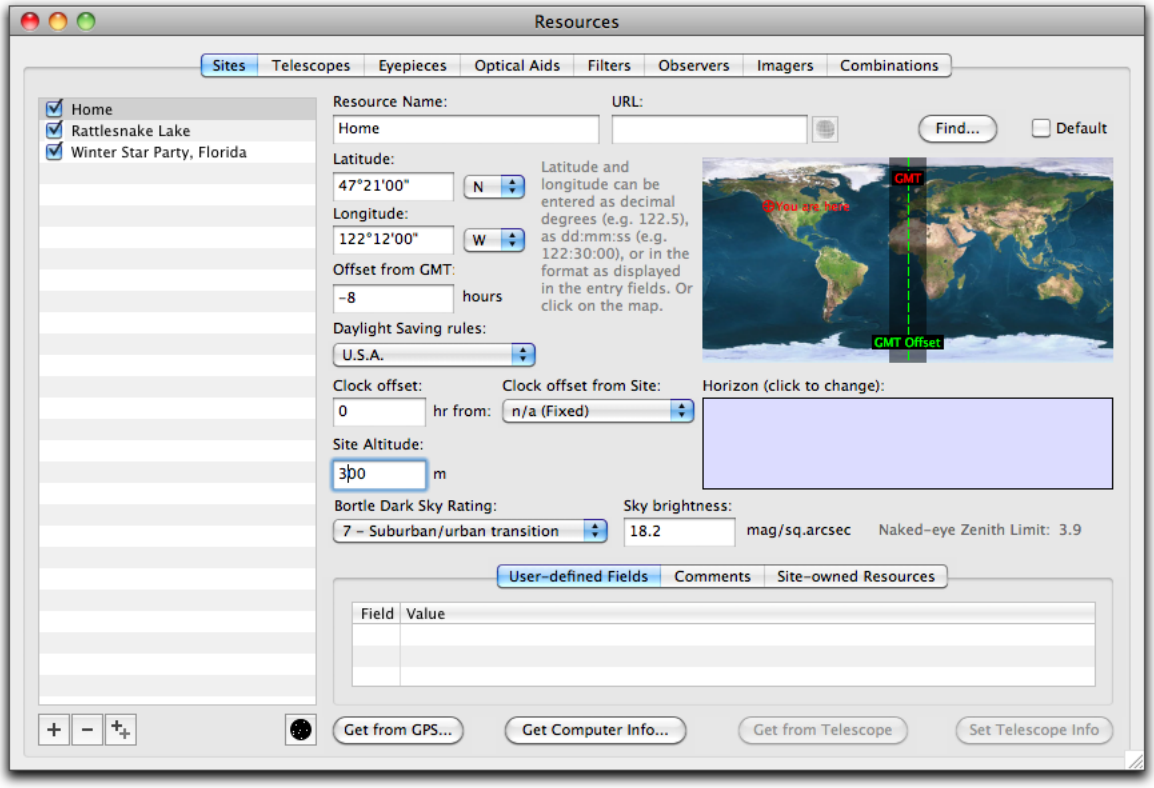

Figure 44: Resources database window

6.2.1 Sites

The window contains several tabs, each one containing a different type of resource. The first tab (**Sites**) contains your observing sites. You should have at least one entry here. If not, click the ***+*** button under the list on the left to create a new one. Make sure you enter the latitude, longitude and Offset from GMT values correctly (other settings are less critical).

6.2.2 Telescopes

Select the second tab (**Telescopes**). For this exercise you should have at least one telescope defined. You should also set up a telescope with a computerised mount, so that you can experiment with controlling that telescope (see Section 6.4 on page 38). Even if you don't have such a telescope, AstroPlanner includes a telescope emulator that lets you control an internal software telescope that looks to the application like a real telescope.

We are going to create such a "fake" telescope:

- Click the ***+*** button under the list of telescopes to create a new entry. Alternatively, you can click the ***Select from List...*** button and choose from a list of commercially-available telescopes.
- Change the **Resource Name** to "Experimental" (or choose your own name).
- Change the **Computerised Mount** via the popup menu to "AstroPlanner: Emulated Go To".
- Leave the other fields as they are.

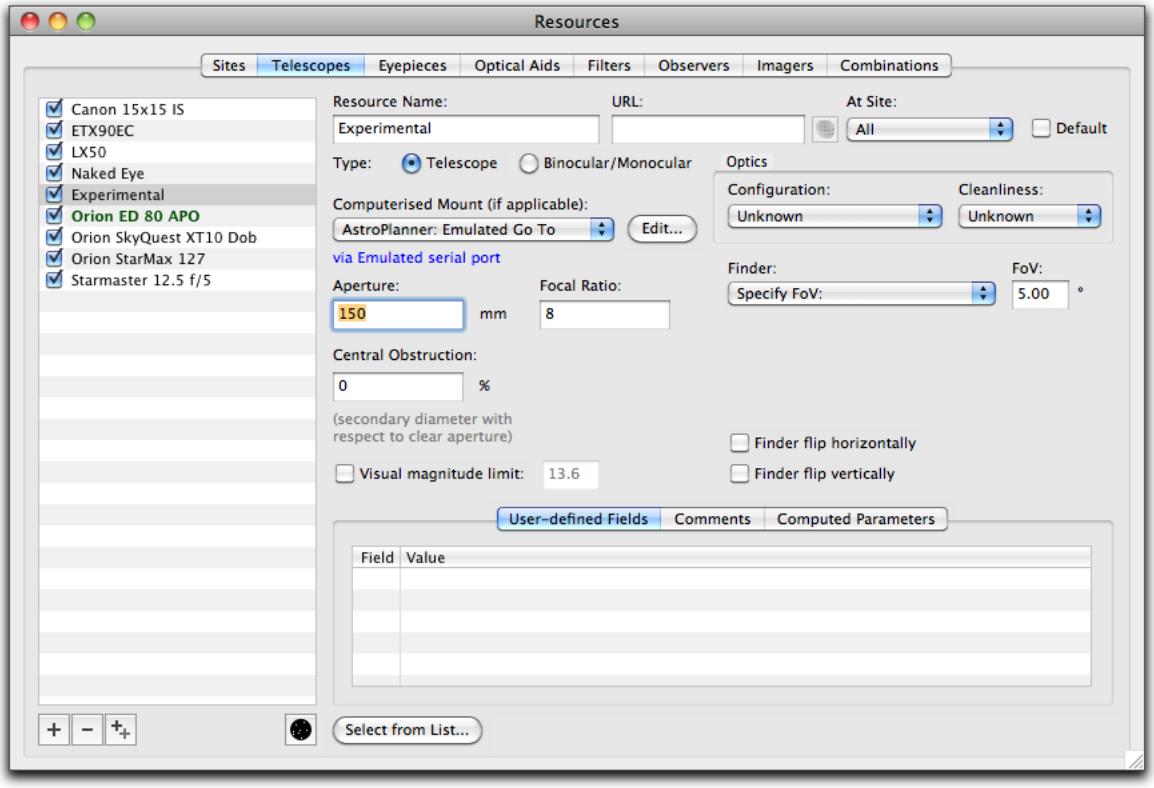

Figure 45: Telescope resources

If you have a physical telescope with a supported computerised mount (e.g. A Meade Autostar- or Celestron NexStar-controlled telescope), then you can set this up quite easily:

- Change the **Computerised Mount** via the popup menu to the particular mount you have (e.g. "Meade: ETX series").
- Click the ***Edit...*** button to the right of the Computerised Mount Popup. This opens a dialog to allow you to edit various settings of your telescope mount.
- Select the **Serial port** that your telescope will connect to (top left of the edit dialog).
- If available to you, also set the **Bit Rate** (top right of the dialog) to match your mount's bit rate setting. If this is disabled, it means you have no choice, and you can ignore it.
- Leave the other settings as they are, and click ***OK***.

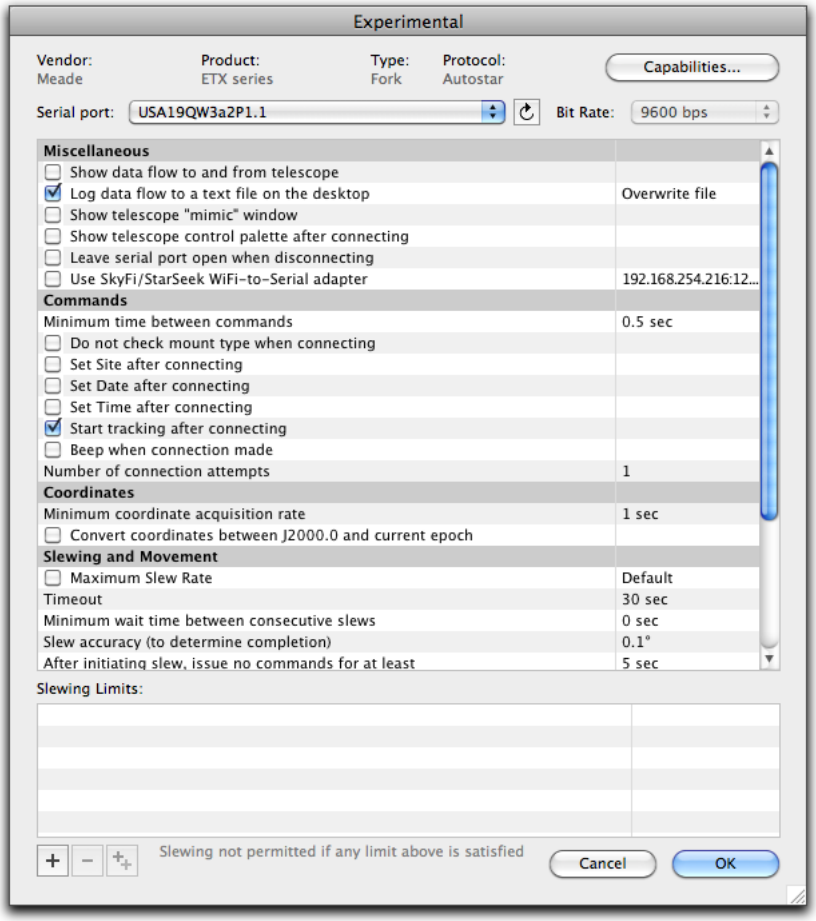

Figure 46: Editing the Computerised Mount settings

6.2.3 Eyepieces

Similarly, select the third tab (**Eyepieces**) and enter at least one eyepiece resource. Make sure, for each eyepiece, you enter the focal length and the apparent field-of-view correctly. Alternatively, you can click the ***Select from List...*** button and choose from a list of commercially-available eyepieces.

6.3 Visualising objects

We will use the plan we set up manually (see Section 6.1.2 on page 23), but you can use any plan you like, as long as it has a few objects in it. What we would like to do is answer the questions below regarding the actual object in the night sky. This is what observation planning is all about.

In the open plan document set the **Site** popup (top right) to your preferred observing site.

6.3.1 Is an object currently visible in the sky?

Right now (daytime or nighttime), can I see the object?[1] This is easily seen by looking at the Visibility (**Vis**) column of the object list. If the Vis column entry for an object is blank (or contains "Horz"[2]), it means that the object is not currently visible in the sky and is either below the horizon or is never

1. If it's daytime, this question is theoretical, unless the object is the sun or moon.

2. Hidden by the site horizon (e.g. a wall, trees, a house, etc.)

visible at the latitude of your site. If the Vis column is "Yes" then the object is currently visible. In Figure 47, NGC6749 and Berk 82 are currently not visible, and the others are all visible.

Additionally, you can look at the Rise Time (**Rise**) and Set Time (**Set**) columns to see when the objects will be visible. If Rise is "Never" then the object is *never* visible at the latitude of your selected observing site. If Rise is "Circum" then the object is circumpolar (i.e. is *always* visible at your observing site).

ID	Images	Name	Type	RA	Dec	Azimuth	Altitude	Rise	Transit	Set	Vis	Obs
NGC6749		NGC6749	Globular	19h 05m 06s	+01°47.0'	69°	-16°	4:34 PM	10:45 PM	4:56 AM		
NGC6791		NGC6791	Open	19h 20m 42s	+37°51.0'	44°	11°	1:03 PM	11:01 PM	8:59 AM	Yes	
IC1310		IC1310		20h 10m 00s	+34°58.0'	38°	3°	2:26 PM	11:50 PM	9:14 AM	Yes	
Berk 82			Open	19h 11m 18s	+13°07.0'	61°	-8°	3:49 PM	10:51 PM	5:53 AM		
M29		Cooling T...	Open	20h 23m 57s	+38°30.5'	33°	5°	1:56 PM	12:04 AM	10:12 AM	Yes	
Berk86		Berk86	Open	20h 20m 24s	+38°42.0'	34°	5°	1:50 PM	12:00 AM	10:11 AM	Yes	
Berk87		Berk87	Open	20h 21m 42s	+37°22.0'	34°	4°	2:10 PM	12:02 AM	9:53 AM	Yes	

Figure 47: Visibility of objects

6.3.2 Will an object be visible when I view the sky at a particular date/time in the future?

The above visibility test is for the current time. You can also check to see whether the object is going to be visible at another time (e.g. next Saturday at 10pm). To do this we use the Fix Date feature of AstroPlanner. This allows you to freeze the Date and Time at specific values and look at the visibility.

The Fix Date feature looks different depending on how wide your plan document window is. If your window is fairly small (e.g. you're using a netbook computer with a small screen) then you will see a ***Fix Date*** button and a checkbox at the top right of the plan document window (next to the Site pop-up) as shown in the left part of Figure 48. If you click the button, a Fixed Date/Time floating window appears. You choose the desired date and time using the controls on the window and click the ***Apply*** button. The visibility settings will all change to reflect the new date/time. You can go back to current real time by unchecking the checkbox next to the ***Fix Date*** button.

If your window is wide enough, the ***Fix Date*** button vanishes and is replaced by a **Date/Time** panel (see the right part of Figure 48). Just change the date or time controls to fix the date. Going back to real time occurs when you uncheck the **Fix date** checkbox.

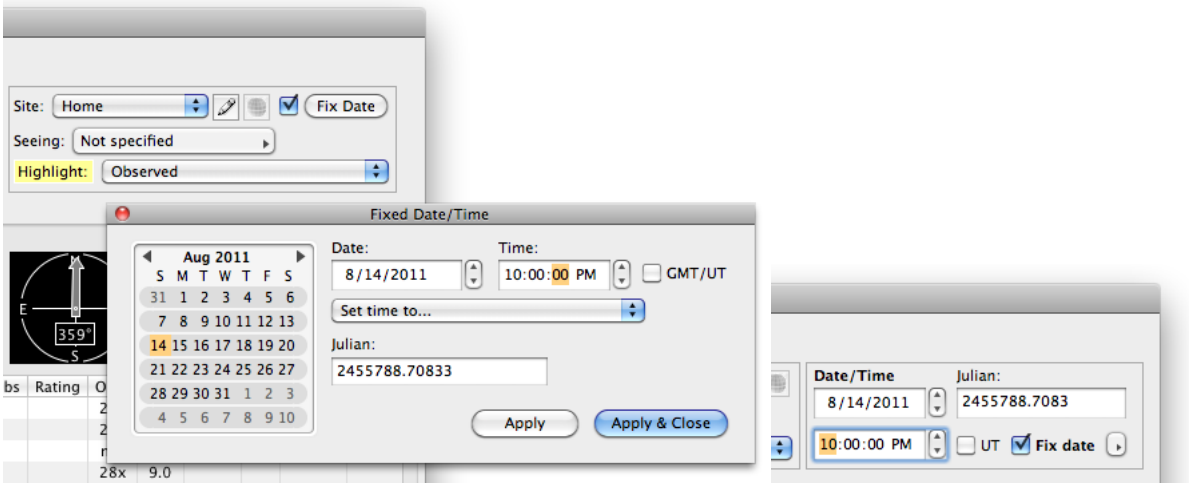

Figure 48: Fixed date/time

6.3.3 Where in the sky is the object?

This is where the **Sky** tab comes in. The tab contains an all-sky chart showing the whole sky as it appears at the selected Site at the current or selected date and time. If you had selected the object of interest in the object list before switching to this tab, the object will be shown on the chart if it's above the horizon (in the figure below, Berk 87 is selected).

Feel free to twiddle with the various Display Options on the right of the chart. You can also use the slider under the Display Options to see the chart at other times of the day/night.

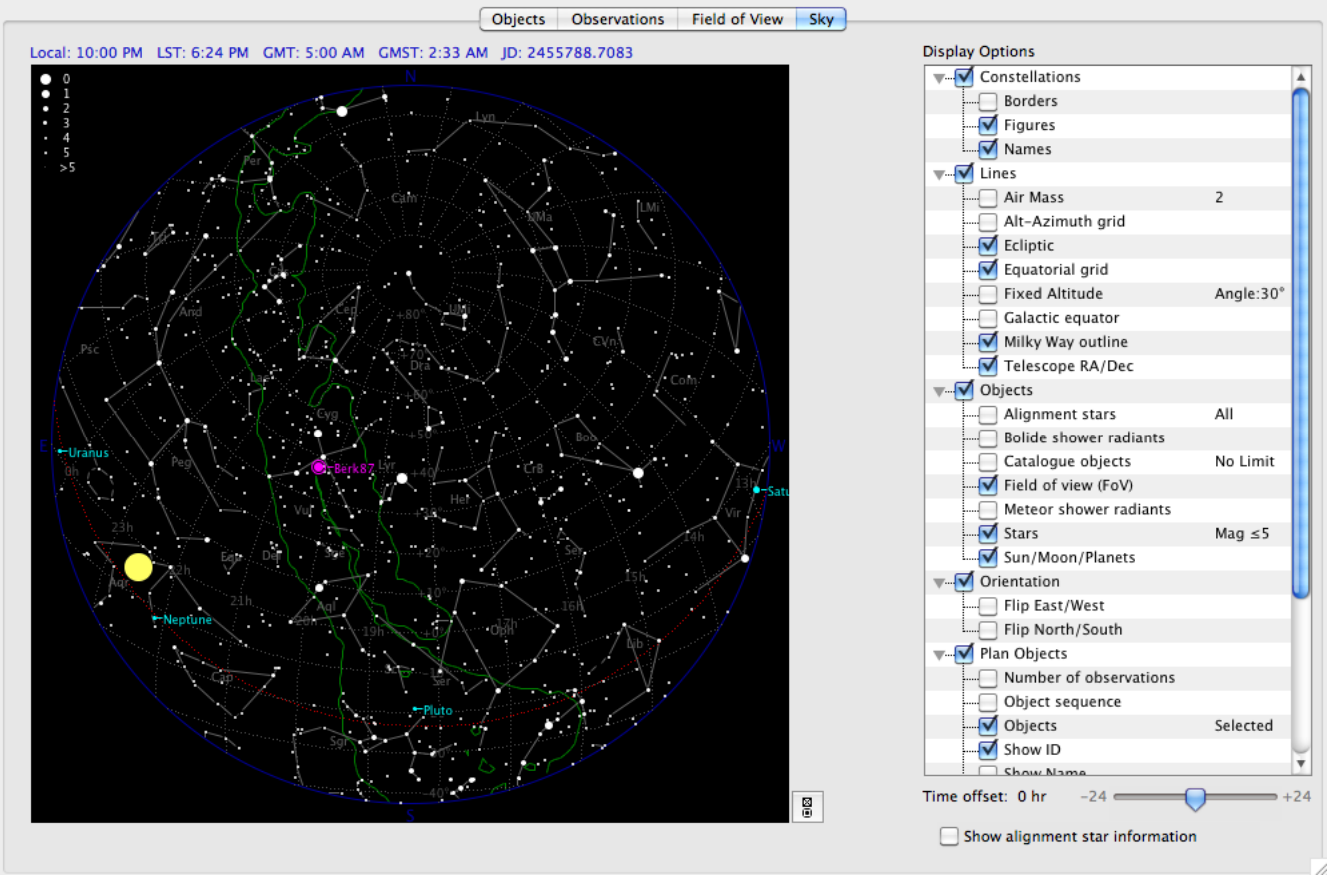

Figure 49: Sky tab

6.3.4 What am I going to see through my telescope?

The next question is figuring out what you are going to see when you look through your telescope with a particular eyepiece. This is done by selecting the object in question in the object list and switching to the **Field of View** tab.

For our example here, we will select M29 in the objects list and then select the **Field of View** tab.

This tab displays a chart that attempts to preview what you will see through a telescope. On the right side are various settings to help you with that. Most importantly, at the top are settings that let you select the telescope and eyepiece you are going to use.

In our case (see Figure 50), we are going to use a telescope called "Orion ED 80 APO" together with a "Panoptic 35mm" eyepiece. Once those are selected, the application computes the actual field diameter (in this case, 1.19°) and draws a chart centred on M29 of that computed diameter. You will also want to see what stars are going to appear in the field of view. You do that by selecting one (or

more) stellar catalogues in the list at the bottom right. If a catalogue's checkbox is checked then any objects in that catalogue that also appear in the field of view will be charted (if they are within the Magnitude Limits defined).

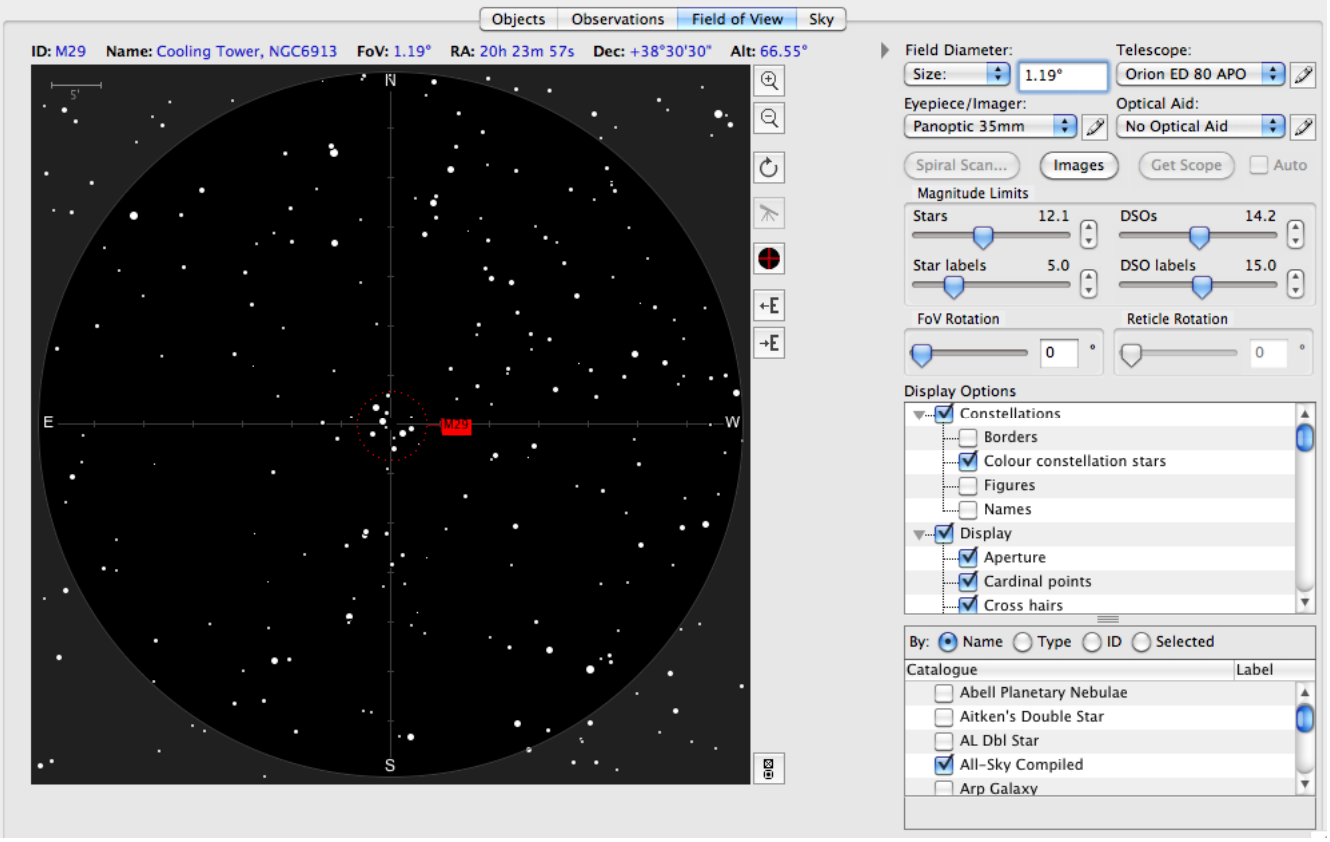

Figure 50: Field of View tab

In the field of view chart, non-stellar objects are displayed using symbols, which means the field of view chart is only a representation of what you will see.

6.3.5 What does the object actually look like?

Figuring out what an object actually looks like through a telescope is not an easy problem to solve. What can be done though, is to look at a photographic image of the object and use that, understanding the fact that in reality it will typically appear much dimmer when viewed visually through a telescope.

AstroPlanner includes the ability to download and save images of the objects you want to observe. These images come from photographic sky surveys (in particular the Digital Sky Survey (DSS)[1] and the Sloan Digital Sky Survey (SDSS)). We will download images for the objects in our plan. Proceed as follows (noting that this will require an Internet connection):

- Select ***Images > Download Images...*** from the main menu.
- In the Images window (Figure 51) select to download for all the objects (7 in this case).

1. Also known as POSS (Palomar Observatory Sky Survey)

- Select the checkbox to **Select image size from object**, and make the image size 200% of object size.
- Select the **POSS 1st Gen** data source by checking its checkbox.
- Click the ***Start Download*** button.

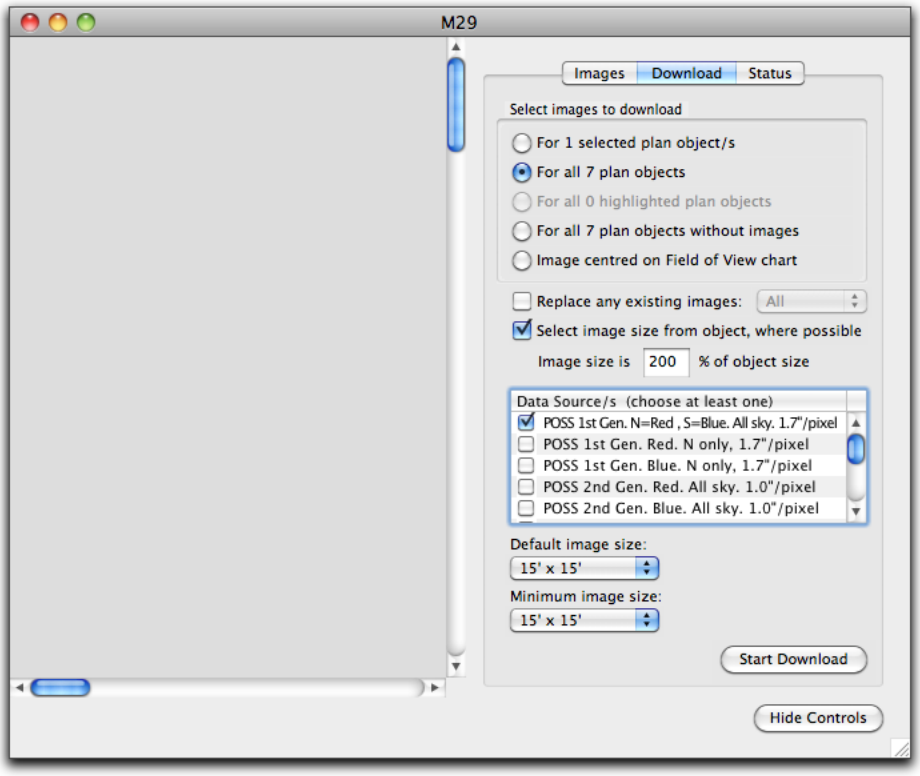
M29
Images
Download
Status
Select images to download
For 1 selected plan object/s
For all 7 plan objects
For all 0 highlighted plan objects
For all 7 plan objects without images
Image centred on Field of View chart
Replace any existing images:
All
Select image size from object, where possible
Image size is
200
% of object size
Data Source/s (choose at least one)
POSS 1st Gen. N=Red , S=Blue. All sky. 1.7"/pixel
POSS 1st Gen. Red. N only, 1.7"/pixel
POSS 1st Gen. Blue. N only, 1.7"/pixel
POSS 2nd Gen. Red. All sky. 1.0"/pixel
POSS 2nd Gen. Blue. All sky. 1.0"/pixel
Default image size:
15' x 15'
Minimum image size:
15' x 15'
Start Download
Hide Controls

Figure 51: Download Images

The download then proceeds. The **Status** tab shows the progress.

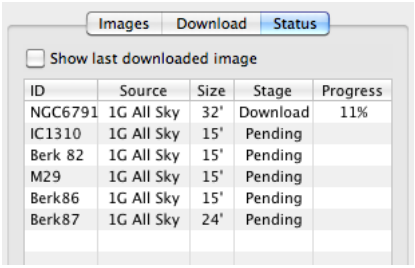

Figure 52: Downloading in progress

Once the download has completed (or before if you like), close the download window and go back to the **Objects** tab of your plan document. You'll see that the **Images** column of the list now has a "D" badge in it. This signifies that the object has one or more associated images. If you select such an object then the image of that object will appear on the right of the object list, as shown in Figure 53.

If you then switch to the **Field of View** tab, the image will be displayed as part of the chart, as shown in Figure 54.

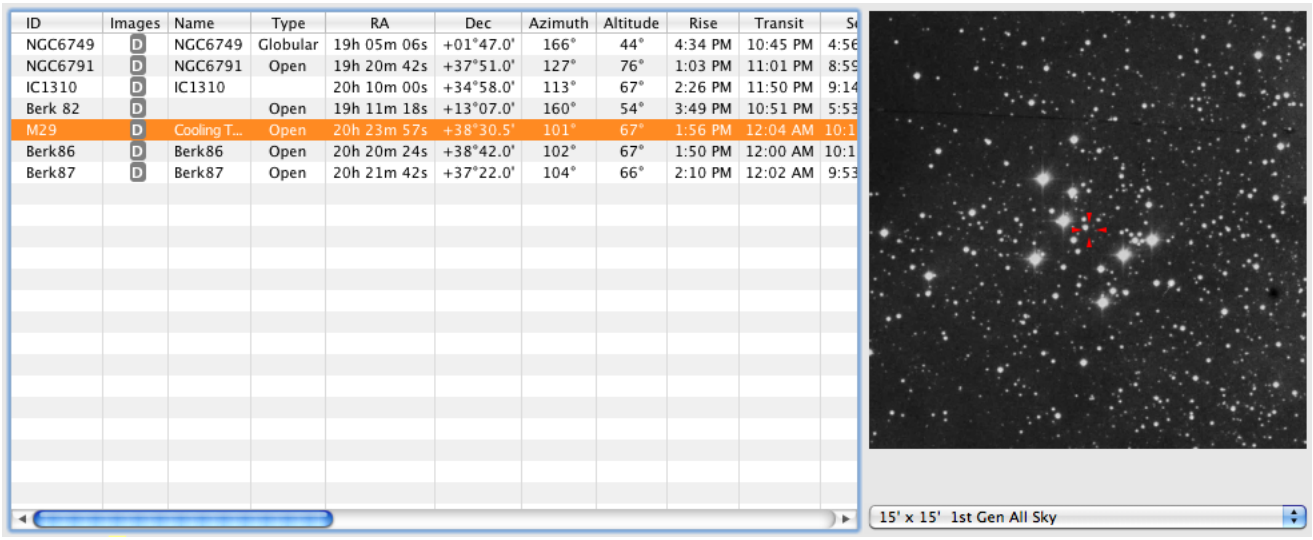

Figure 53: Objects list with images

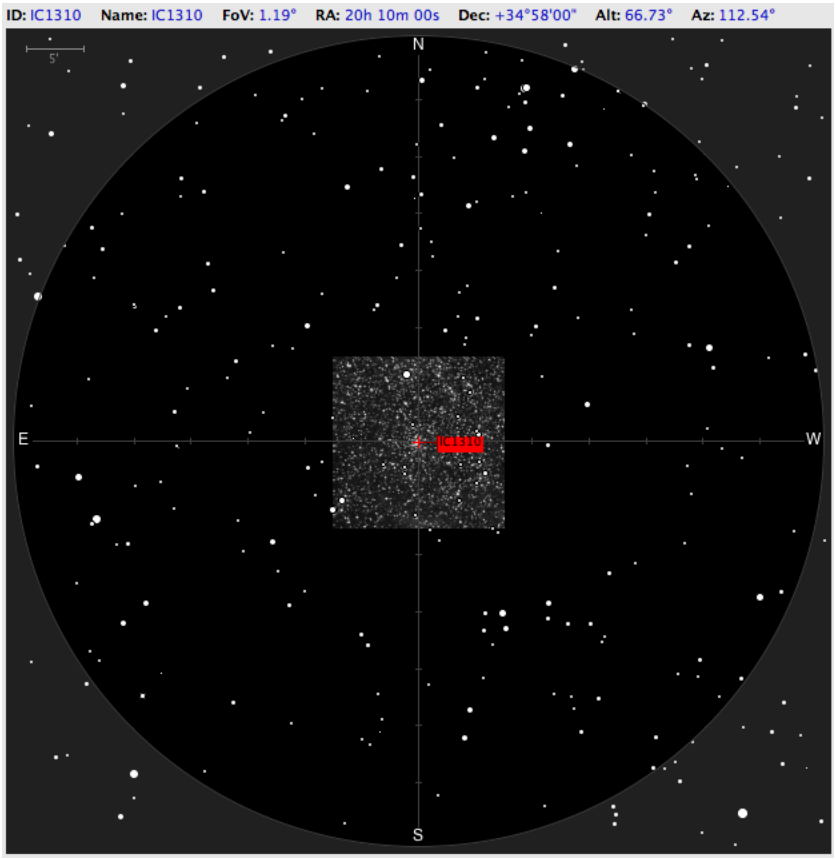

Figure 54: Image of IC1310 in field of view chart

6.4 Using a computerised telescope

For this demonstration we are going to use our "Experimental" telescope resource that we set up to use an emulated go to mount. You can use a real computerised mount if you wish, the process is identical (if somewhat noisier in the case of a real mount).

In the plan document window, choose your telescope resource in the telescope panel at the top left.

Check the **Connect to telescope** checkbox. The application then attempts to connect to the telescope mount, after which the checkbox caption changes to **Connected to telescope**, with the telescope firmware version number if applicable.

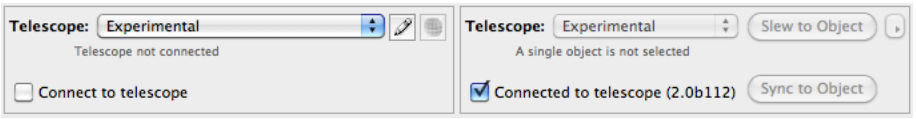

Figure 55: Telescope panel before and after connecting

In the case of the emulated mount, a small floating window appears showing the current status of the emulated telescope.

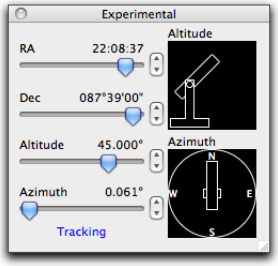

Figure 56: Emulated telescope floating window

At the top of the plan document window the "LED" displays will now include the Telescope RA, Dec, Altitude and Azimuth (assuming there's enough width to display them).

Now select an object in the object list. If it is currently visible the ***Slew to Object*** button next to the Telescope popup will be enabled. Click the button to slew the telescope to the selected object.

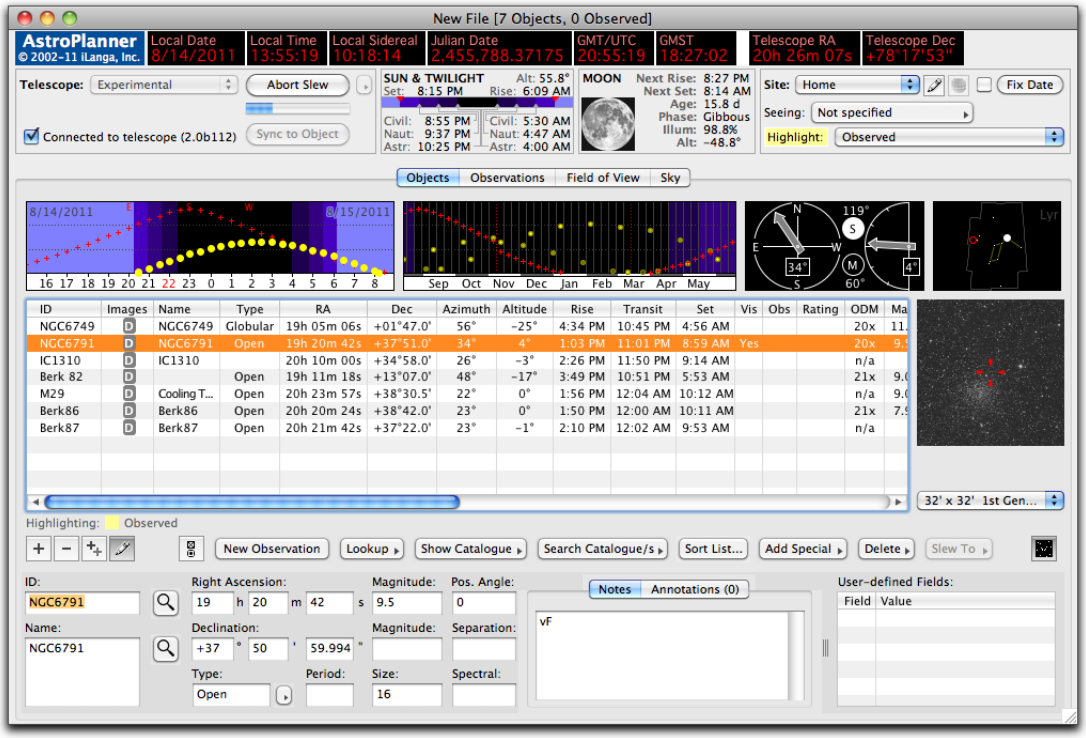
New File [7 Objects, 0 Observed]
AstroPlanner
© 2002-11 iLanga, Inc.
Local Date 8/14/2011
Local Time 13:55:19
Local Sidereal 10:18:14
Julian Date 2,455,788.37175
GMT/UTC 20:55:19
GMST 18:27:02
Telescope RA 20h 26m 07s
Telescope Dec +78°17'53"
Telescope: Experimental
Abort Slew
Connected to telescope (2.0b112)
Sync to Object
SUN & TWILIGHT
MOON
Site: Home
Fix Date
Seeing: Not specified
Highlight: Observed
Objects
Observations
Field of View
Sky
8/14/2011
8/15/2011
ID Images Name Type RA Dec Azimuth Altitude Rise Transit Set Vis Obs Rating ODM
NGC6749 D NGC6749 Globular 19h 05m 06s +01°47.0' 56° −25° 4:34 PM 10:45 PM 4:56 AM 20x
NGC6791 D NGC6791 Open 19h 20m 42s +37°51.0' 34° 4° 1:03 PM 11:01 PM 8:59 AM Yes 20x
IC1310 D IC1310 20h 10m 00s +34°58.0' 26° −3° 2:26 PM 11:50 PM 9:14 AM n/a
Berk 82 D Open 19h 11m 18s +13°07.0' 48° −17° 3:49 PM 10:51 PM 5:53 AM 21x
M29 D Cooling T... Open 20h 23m 57s +38°30.5' 22° 0° 1:56 PM 12:04 AM 10:12 AM n/a
Berk86 D Berk86 Open 20h 20m 24s +38°42.0' 23° 0° 1:50 PM 12:00 AM 10:11 AM 21x
Berk87 D Berk87 Open 20h 21m 42s +37°22.0' 23° −1° 2:10 PM 12:02 AM 9:53 AM n/a
32' x 32' 1st Gen...
Highlighting: Observed
New Observation
Lookup
Show Catalogue
Search Catalogue/s
Sort List...
Add Special
Delete
Slew To
ID: NGC6791
Name: NGC6791
Right Ascension: 19 h 20 m 42 s
Declination: +37 ° 50 ' 59.994 "
Type: Open
Period:
Magnitude: 9.5
Magnitude:
Size: 16
Pos. Angle: 0
Separation:
Spectral:
Notes
Annotations (0)
vF
User-defined Fields:
Field Value

Figure 57: Telescope slewing to selected object

6.5 Making observations and logging them

So now we have an idea on how to construct an observing plan, how to get a heads-up on what we're likely to see, and how to control our telescope. Now we can observe. This section is a brief tutorial on how to log observations.

To log an observation:

- Select the object you are observing in the list in the **Objects** tab of the plan document window.
- Click the ***New Observation*** button under the list[1]. The Observation Date/Time dialog is opened.
- If you are logging observations at your telescope, you click the ***Now*** button, otherwise enter the date and time of the observation. The graphic at the top shows the current time of day/night and the altitude of the object (red crosses). Click ***OK***.

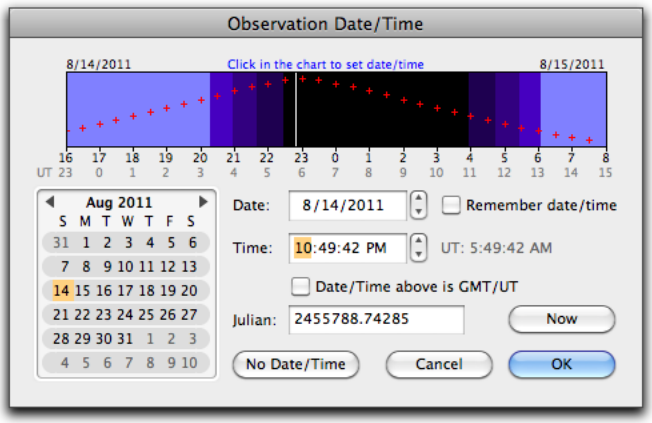

Figure 58: Observation date/time dialog

- The observation is added to list of observations for this object. It's now up to you to fill in the applicable fields for the observing session (this observation is the first observation logged for this session). You should also log a description of what you saw.

1. This is a short cut for switching to the **Observations** tab and clicking the **+** button under the list of observations.

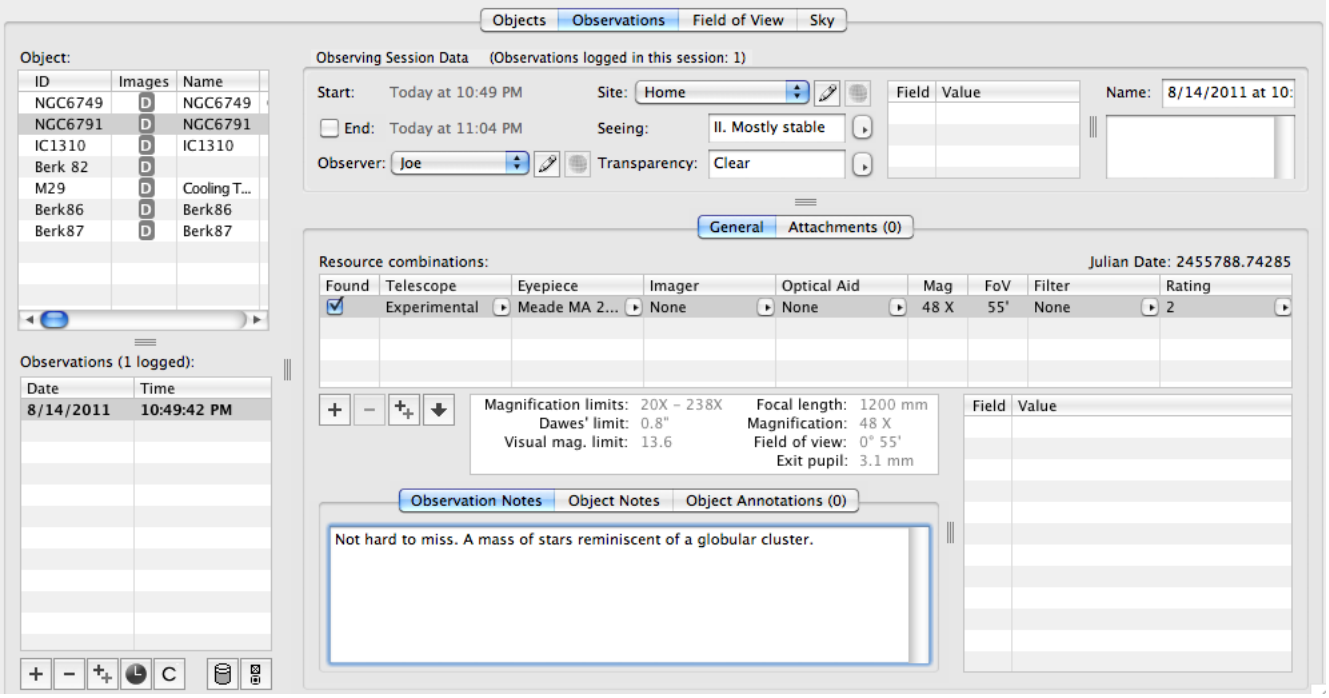

Figure 59: Observations tab with a logged observation

6.6 Printing reports

AstroPlanner includes features for printing observing forms (forms with blank spaces that you can fill in by hand), observing reports (a printed list of observations), and finder charts (for a particular object: charts at various resolutions that help you to find the object in the field).

We will continue using the small plan we devised earlier. Note that you can see the printed output as an on-screen preview without having to print it out on dead trees.

We'll look only at printing observing forms. The other types of printed reports are very similar.

6.6.1 Observing forms

Here's how to print observing forms for the objects in your plan:

- Go to the **Objects** tab.
- Use the ***File > Print...*** menu command.
- The **Print Objects** dialog is displayed. Choose **Observing Forms** from the **Task** popup.
- Select the informational fields you'd like printed out for each object (under Object fields), and the fields you'd like to print out as a blank template (Session and Observation fields).
- There are a number of Options you can play with. For this exercise we left the default settings, but added the **Object images** setting under **Images and Charts**. We also selected the **Sketching Templates** option. See Figure 60.
- Click the ***Preview...*** button. The first time you use this in a run the Printer Setup dialog will be displayed so that you can specify paper size, portrait vs. landscape, etc.
- The preview window is then generated (Figure 61). If you're happy with the report format then use the ***Print...*** button to print it out, otherwise close the preview window and try again.

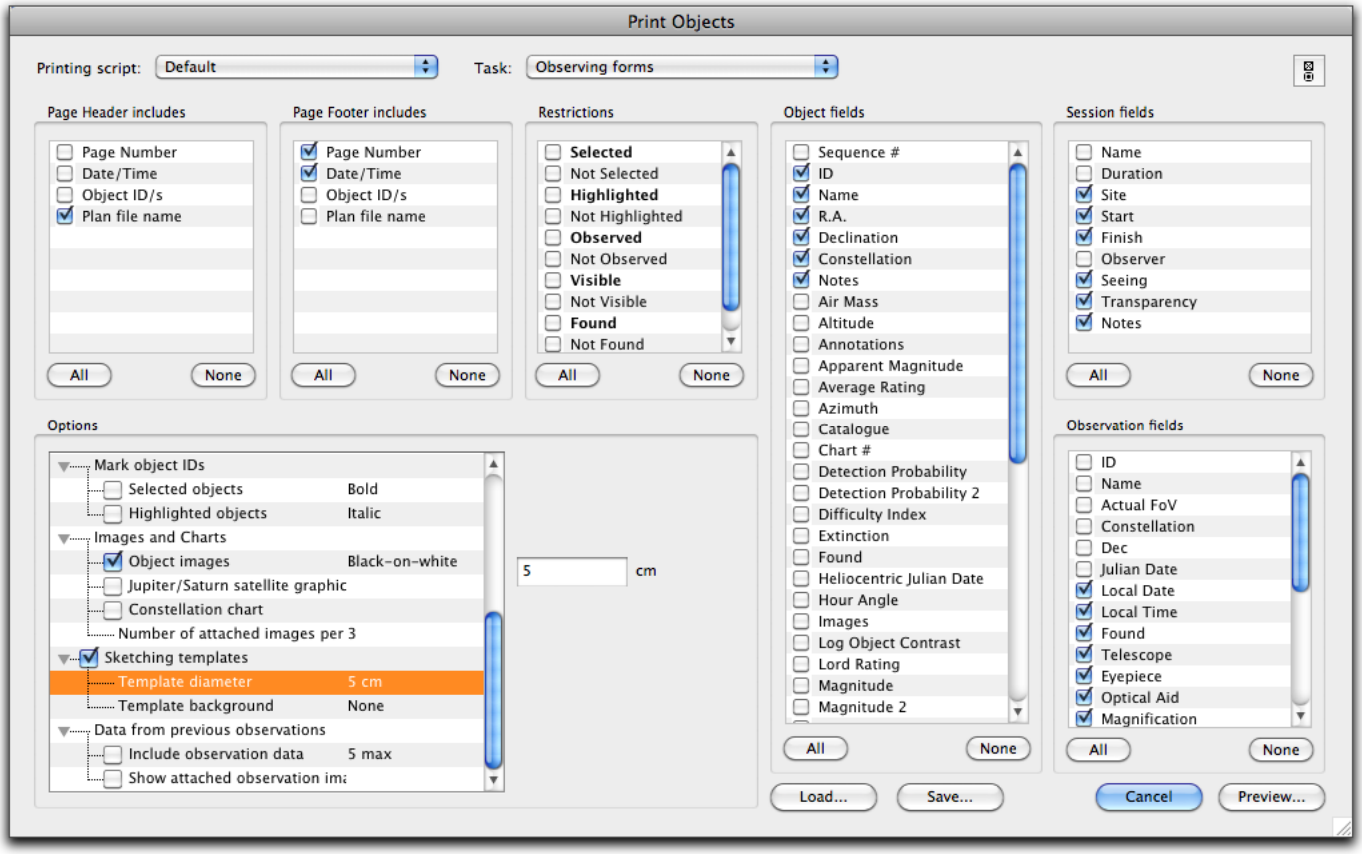

Figure 60: Print dialog for observing forms

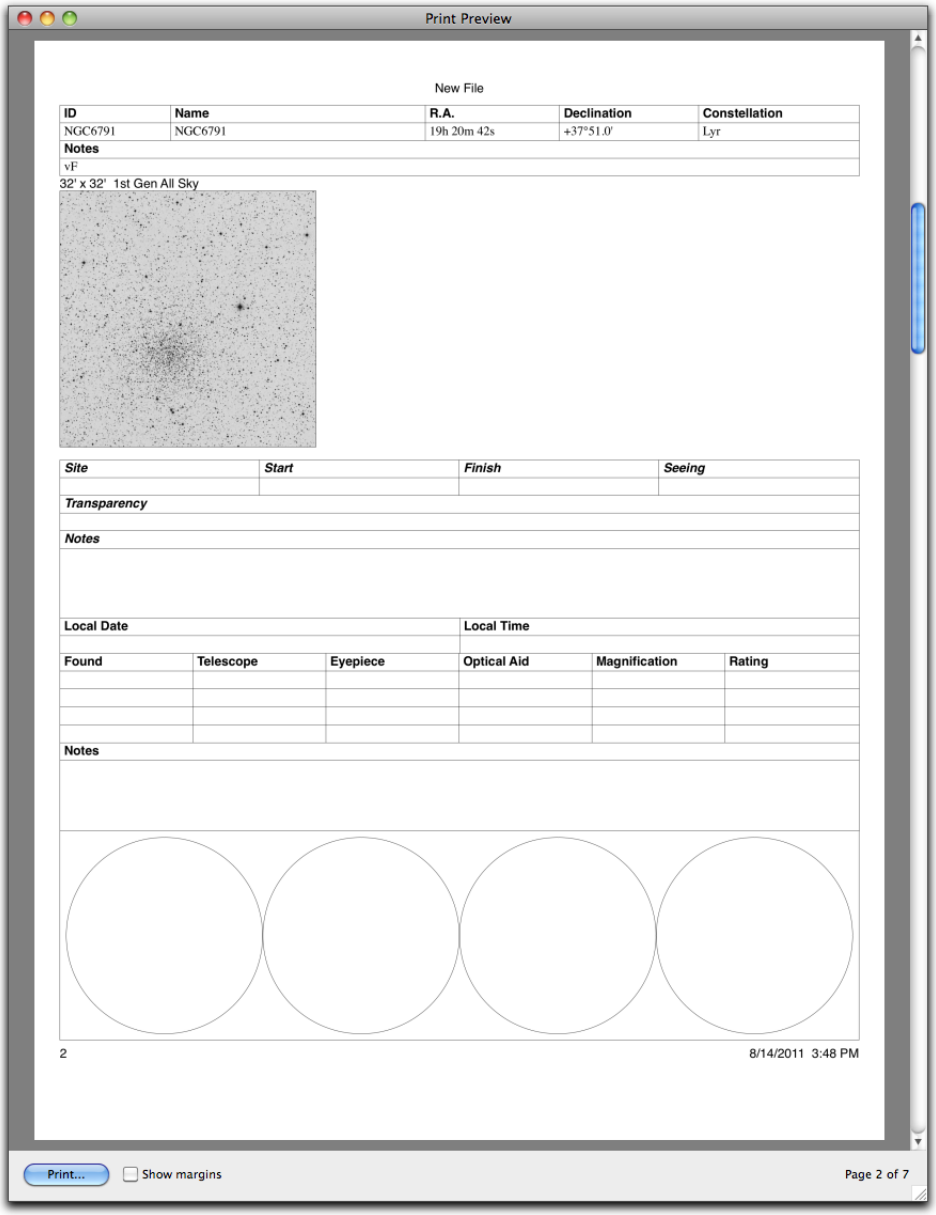

Figure 61: Print preview for observing forms

7 How to get help

AstroPlanner is a very rich application[1] and it takes some time and effort to get it to do your bidding. There are several ways to get help. Remember: no question is too dumb.

7.1 User Manual

This manual is the "definitive" source of assistance for the application. Use the PDF search features to find what you want within the manual, or just peruse the Table of Contents. If a feature isn't discussed in this manual, it's a bug! (please contact the vendor - see below)

There's a troubleshooting chapter in this manual if you are having problems that you think are abnormal (e.g. the application is crashing, won't connect to your telescope, etc.).

7.2 User group

There's a Yahoo group dedicated to AstroPlanner:

http://tech.groups.yahoo.com/group/astroplanner/

There are a lot of friendly people there, including the author of the application, who are ready to answer your questions. There's also an archive of posts, and searching it might throw light on your issue.

7.3 Vendor

Feel free to send your questions, requests, etc. to technical support:

support@astroplanner.net

Although we need sleep too, we'll get back to you as soon as we can.

7.4 FAQ

There's a FAQ (Frequently Asked Questions) page at:

http://www.astroplanner.net/faq.html

This will be updated as questions come in that are considered of interest to more than just the asker of the question.

7.5 Blog

Although it can't really be classified as a "help resource", there's a blog written by the AstroPlanner author that might occasionally offer some insight into the devious mind behind the product:

http://blog.astroplanner.net/

1. Some might use the phrases "overly-complex", "feature-laden", or "learning-curve challenged".